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Third Zurich Session, International Photometric Commission.[1]

The International Photometric Commission, which was founded at the Gas Engineering Congress, held in Paris in 1900, has since held two sessions in Zurich—viz., in the years 1903 and 1907. A third session opened, also at Zurich, the 26th ult., and closed the 29th ult The representatives of the Institution of Gas Engineers—viz., Mr. Charles Carpenter and Mr. James W. Helps—were both unable to attend this session; and the Council of the Institution nominated Dr. Harold G. Colman and Mr. W. J. A. Butterfield to act in their stead. It had been announced beforehand that, as the proceedings of the sessions would be largely concerned with questions which could best be discussed in private, it was undesirable that reporters should be admitted, but that the verbal proceedings and the papers submitted for discussion would be communicated to the press. The following report of the proceedings is derived from these documents:

1. *Journal of Gas Lighting.*

At the opening of the session in the Federal Polytechnic there were present the following delegates: France—The President, M. Th. Vautier, Professor of the University of Lyons; M. Sainte-Claire Deville, Engineer of the Experimental Works of the Paris Gas Company, and M. F. Laporte, Sub-Director, the Central Laboratory of Electricity, Paris. Germany—Dr. Brodhun, Member of the Imperial Physico-Technical Institute ("Reichsanstalt") at Charlottenburg; Professor H. Drehschmidt, Chemist at the Berlin Corporation Gas Works at Tegel; and Dr. P. Eitner Professor at the Technical College at Carlsruhe. Great Britain—Mr. W. J. A. Butterfield and Dr. Harold G. Colman, both of London. Austria—Dr. Hugo Strache, Professor at the Technical College at Vienna. Holland—Dr. L. J. Terneden, Engineer at the Corporation Gas Works of Amsterdam. Italy - Signor M. Böhm, Consulting Engineer, of Milan. Switzerland—M. Weiss, Manager of the Zurich gas undertaking.

In opening the proceedings, the President said M. Weiss had proposed that Dr. Ott, Chemist at the Zurich Gas Works, should be made an additional member of the Commission, and that a vote on this proposition would be taken the following day. He also invited the members to consider a proposal made by Dr. Strache that Dr. Kuminsky and Dr. Eger should be admitted to the meetings at this session, and this proposal was agreed to. The President then proposed the following programme of proceedings for the session:

1. The reception and discussion of a report by Dr. Eitner on "The Methods of Photometry in Use in Germany."

2. Discussion of the conclusions deducible in regard to the absolute illuminating power obtainable by incandescence, and the absolute illuminating power flames, from the results of experiments reported on by M. Sainte Claire Deville in 1903 and 1907, and the experiments made subsequently in Carlsruhe.

3. Private business—viz.: (*a*) Increase of membership of the Commission. Experience had shown that there were too few members, and it was desirable that an opinion should be expressed for transmission to the nominating technical institutions of gas engineers, to the effect that the countries which now have 4 members should be entitled to at least 6, and those which now have 1 to at least 2. [At this point, Dr. Colman inquired what effect this increase of numbers would have on the vote of the different countries, and having been informed by the President that there was at present no rule settling the method of voting, he suggested that it would be convenient to make such a rule before discussing the question of the increase of membership. Dr. Brodhun pointed out that hitherto the Commission had agreed unanimously rather than by voting.] (*b*) Renewal of the appointment of members of the Cemmission by the technical institutions nominating them as their delegates. It would be well to ask these institutions to renew the appointment of all their representatives on the Commission, and that this renewal should take place after each session. The expiration of the appointment would allow any members to retire who might be prevented, either by the state of their health or by their engagements, from taking part in the work of the Commission or assisting at its sessions. It was quite understood that all the retiring members would be eligible for re-election. [Professor Drehschmidt here suggested that the different technical institutions might settle this question. But the President pointed out that while the ultimate decision would rest with them, it

would be very difficult and tedious to handle the question by correspondence between them, and it was desirable that they should know the views of the Commission.] (*c*) Hitherto the Commission has had no authority to advance funds for promoting any investigation connected with its programme of work, and it might be useful to put an end to this state of things. There were two ways in which this might be done—to ask the nominating technical institutions to grant each year to the Commission an amount which it would reserve for this purpose, or to wait until there was an opportunity of subsidizing an interesting research, and then ask these institutions for the necessary funds. [Dr. Strache remarked that the annual contribution seemed preferable.] (*d*) The admission to the Commission later of representatives of electrical interests. The President had received, a few months after the 1907 session of the Commission, a letter from Herr Dettmar, General Secretary of the Association of German Electricians, in which he said that his Society would like to be represented at the meetings of the Commission, and asking on what conditions this could be arranged for; and if its delegates were admitted, what would be the number allowed. The same proposition had been made verbally by other important electrical institutions. The question would involve consideration of the best manner in which the electrical interests of the different countries could be dealt with; and it might be that the National Electrotechnical Committees should appoint representatives, or failing them the International Electrotechnical Commission. [Dr. Colman interposed to say that the different technical gas and electrical institutions might nominate members of the Commission, as well as the national laboratories. M. Sainte-Claire Deville pointed out that the Commission was originally constituted to deal with incandescent gas lighting. But the President said it was not a question of such extensive modification. They had only to settle if representatives of the electricians should be admitted to meetings in which subjects of common interest would be discussed, such as photometric units, the adoption of a standard of light, or photometric rules applicable to both methods of lighting. On the other hand, there were many questions to be studied respecting incandescent gas lighting in which electricians were not interested.]

4. A communication by Messrs. Butterfield, Haldane and Trotter, on "Corrections for the Effect of Atmospheric Conditions on Photometric Flame Standards."

5. Rectification of the numbers settled at the 1907 session for the ratios subsisting between the intensity of the lights of the Hefner, Carcel and Vernon Harcourt lamps. [The President pointed out that a few months after the 1907 session, he had heard from Dr. Glazebrook that the National Physical Laboratory, acting with the Metropolitan Gas Referees, had considered the desirability of retaining the value of 10 liters per cubic meter of air for the standard humidity in the case of the pentane lamp; and, for reasons named in a communication made by Dr. Glazebrook to the British Association at Dublin in 1908, it had been decided to adopt the value of 8 liters per cubic meter (measured by the Assmann hydrometer) as standard humidity. The National Physical Laboratory suggested that the question should be reconsidered at the next meeting of the International Photometric Commission. The President suggested that Messrs. Brodhun and Laporte, who had already acted on the Sub-Committee who had reported in favor of the adoption of the numbers for the ratios already referred to, should make the correction suggested by Dr. Glazebrook, and bring forward the corrected figures for the acceptance of the Commission.

6. Substitution of Calorific Power for the Illuminating Power of Gas—Some colleagues believed that the Commission should express its opinion on this question. Dr. Bunte had held a conference in 1909 on the qualities requisite in gas of proper quality, and had stated finally that the calorific power expressed accurately the energy of the gas, and that the determination of illuminating power, in the actual conditions in which gas was used, ought thenceforth to be regarded as useless. Nevertheless., as no authoritative body had yet expressed an opinion on this important question, it would be particularly opportune for the Commission to make a pronouncement on the principle involved therein, while not fixing a minimum value for the calorific power, having regard to the different classes of coal used and the various systems of distillation in vogue in different countries. [Dr. Strache stated that he proposed to make a commuication on the subject.]

7. Photometric Dimensions and Units—The President had sent to all the members of the Commission the text of the proposals made by a Sub-Committee of the Illuminating Engineering Society in November, 1910, regarding photometric dimensions and units. The question had been discussed at the congress of electricians at Geneva in 1896 and the conclusions then arrived at had not been subjected to very great modification by the Sub-Committee of the Society in question. A communication by Herr Monasch, of Berlin, in the *Journal für Gasbeleuchtung*, bore on this question; and the President had asked Dr. Bunte to give the Commission his opinion as to the answer to be made to Herr Monasch.

8. The International Standard of Light.

The Commission approved of the order of proceedings as indicated by the President.

Dr. Eitner then read his report on the photometric methods employed in Germany. A general discussion followed; and the sitting was brought to a close.

Next day, Mr. Butterfield read the communication to which reference has already been made; and he was thanked by the President. The paper, which gave rise to a discussion, will be included in the "Transactions" of the Commission. Just before the mid-day adjournment, the President proposed the admission of Dr. Ott; and he was duly elected. On the invitation of M. Weiss, it was decided to visit the gas works of the Municipality at Zurich at Schlieren next morning. The discussion was continued in the afternoon; and it was followed by the consideration of the subjects relating to the constitution of the Commission mentioned by the President when indicating the order of proceedings. It was unanimously decided to give to each country represented the same number of votes.

On the resumption of the proceedings on the third day, the President directed attention to the spectro photometer of M. Thovert; and Herr Eitner stated that he had constructed a similar instrument 9 years ago. Herr Strache then read his communication; and, after a few remarks upon it, the members passed again to the consideration of the question of the constitution of the Commission. In the afternoon, the President gave the members particulars of the work of the Sub-Committees who had had under consideration the comparison of the Harcourt, Hefner and Carcel standards of light, and the substitution of a calorific for an illuminating power test of gas; and the conclusions arrived at were unanimously adopted. The President suggested that the members should take up the question of the international candle; but Herr Eitner thought it would be better to go on with the matters relating to the constitution of the Commission. It was decided that the maximum number of delegates for England, France, Germany and the United States should be six; and the countries that now send one delegate should have a maximum of three. The next subjects were the re-election of the delegates, and the expenses of the Commission. No decision was come to upon them; but a proposition to admit electricians was unanimously adopted. Other internal matters occupied the Commission for the rest of the sitting.

On the concluding morning, the members were occupied with the subject of the unit of intensity; and a sub Committee, consisting of the President and MM. Brodhun, Eitner, Laporte and Dr. Colman, was nominated to deal with it. They expressed the opinion that it would be better to give to a unit common to different countries a name such as "*bougie normale*," "*bougie étalon*," or "*bougie decimale*," than to use the word "international," and they thought the full title should be employed to avoid confusion. At the afternoon sitting, the President read the resolution proposed by the Sub-Committee. Herr Eitner thought the word "*étalon*" should be avoided, as it referred to an apparatus and not to magnitude. The President remarked that "*étalon*" was the translation of the word "standard." Dr. Colman asked if "standard candle" could not be employed. The President replied in the negative, as an English expression could not be introduced. Personally, he did not see any inconvenience in striking out the words "*bougie étalon*." He proposed that this should be done, and it was unanimously agreed to. The members then had their attention directed to a note by M. Blondel on the technical nomenclature of lighting, and a Sub-Committee, consisting of MM. Brodhun, Laporte, Kusminsky, Paterson and Hyde, was nominated to consider the subject. After the transaction of other business, it was decided that the Commission should meet again 3 years hence.

In bringing the congress to a close, the President expressed his pleasure at the agreement which had prevailed among the members; and he thanked those who had contributed to the work. He thought they might hope to do even better at the fourth session. Herr Eitner said the success of the congresses was due to the desire of the members to achieve it, and to the labors of the President; and, in the name of all, he tendered him their thanks.

Liability of Gas Companies for Injuries Resulting from Escape of Gas.

[Prepared for the JOURNAL by MR. JOHN EDSON BRADY.]

Explosions Resulting from Uncapped Gas Pipes.—A number of serious accidents have happened as a result of carelessness in the matter of capping the ends of gas pipes not intended for immediate use. These are cases in which it is difficult for the company to prove a defense.

In March, 1908, an explosion of gas demolished the dwelling in which a man named Roseberry resided, and seriously injured him. The undisputed evidence showed it was a rule of the company that it be employed to make all connections. Roseberry engaged the company to connect his range with its pipes. The company sent its employee (Taylor) to put the stove in running order. Taylor found that, when the gas was lighted, it burned with an insufficient flame, indicating, as he said, that the pressure was low, or that there was an obstruction in the pipes. Taylor reported the condition of affairs to Preston, the foreman of the company, and Preston went to the house to investigate. In the course of his investigation he found gas escaping from an aperture at the end of the lower service pipe in the cellar. He stopped the opening with his hand and hunted through his pocket for a piece of waste, which he usually carried, but could not find any. Nor could he find anything in the cellar with which to check the flow of gas. While he was in the act of obtaining something from the floor above to use as a plug the explosion took place. The company was held liable. The case is that of United Oil Company *v.* Roseberry; 30 Colo., 177, 69 Pac., 588.

Although witnesses for the company testified that the cap, which should have covered the end of the service pipe, was in position when they finished their work in the building, there was no evidence showing a test or inspection of the pipes after they were put in place. But it was not upon this ground that the company was held liable. The court was of the opinion that Taylor was negligent in failing to make an examination of the pipes when he found that the gas burned with an unusually feeble flame, and that he was negligent in not turning the gas off when he left the premises. And Preston was negligent in not turning the gas off when he commenced his search for a leak, and also negligent in not warning the plaintiff of the danger of an explosion. These acts of negligence rendered the company liable.

The plaintiff, in another instance, employed a party named Thomas to put on some gas burners. In doing so Thomas omitted to close the end of one of the pipes and the plaintiff's wife was injured by the explosion which followed upon her entering the room. It appeared that Thomas had formerly acted as superintendent of the defendant gas company, and that since his connection with the gas company had ceased he had been permitted by the company to turn on the gas for new customers. The plaintiff was aware that Thomas was no longer superintendent of the defendant company and that he had severed his relation with the company. It was held that the company was not liable for the negligence of Thomas. He was not in the company's employ and the plaintiff had notice of that fact. The facts showed merely that the company was willing that Thomas should turn on the gas, if the customers chose to have him do so for their own convenience. He was acting for the customer, not for the company, and the company was not liable for his acts. "Flint *v.* Gloucester Gas Light Company;" 91 Mass., 552.

In Kenney *v.* South Shore Natural Gas and Fuel Company; 134 N. Y., App. Div., 859 (1909), the plaintiff sought to recover for injuries received because of an explosion of natural gas which had escaped from an uncapped pipe in an upper room in her house. The house had been piped and the piping tested, but the pipes were not connected with the defendant Company's main until several months after the accident. The pipe from which the gas escaped was one intended for lighting purposes, and the plaintiff desired to use gas for heating only. This pipe, therefore, was capped at the time it was installed. The evidence as to who removed the cap was meager, but it was held sufficient to warrant the jury in finding that it had been removed by an employee of the gas company, and in assessing damages against the Company. In the language of the court: "In conclusion it is clear, and practically conceded, that the cap must have been removed that day by someone. It did not come off without direct human aid. No one had any occasion to remove it except Hallock (the Company's employee). He would, necessarily, or at least naturally, do so if he made the pressure test, as his instructions from defendant required him to do, unless a previous test had been made; and, as the jury may have found, he insisted to at least two persons, after he had learned that the test had previously been made, that he was going to make the test anyway. The jury were fairly warranted in finding that he actually did remove the cap, make the test and then negligently fail to replace it."

At the time of an explosion of gas it was found that a plug was missing from the end of the pipe in the room where the explosion occurred. The defendant gas company had installed the piping, and the question was whether or not it was responsible for the absence of the plug from the pipe. There was evidence that the pipe had been laid about a month before the accident, and that it had never been used until the date of the accident. There was no evidence that it had ever been disturbed at the point where the plug should have been inserted from the date the pipe was laid until the date of the accident. Upon this latter date the gas was turned on and, the plug being missing, the gas escaped and exploded. It was held that there was sufficient evidence to justify the jury in finding that the company had failed to plug the pipe. The company was held liable for the damage done by the explosion.

Injury Resulting from Interference with Meter Cock.—A gas company was sued for the damage caused by an explosion of gas in his warehouse. It appeared from the evidence that, on the evening of the explosion, the plaintiff had rented the storehouse to an organization of colored people for the purposes of a banquet. The banqueters did not use gas light on the occasion of their feast, but dined by candle light. In fact, the gas had been turned off previously by the plaintiff's order. It was shown that there were two methods by which the gas could have been turned off. It could have been turned off by means of a meter cock, which was the property of the plaintiff, but which was used also by the defendant company. It could also have been turned off by the service cock, located under the curbstone, which was the property of the company and under its exclusive control. Witnesses testified that someone had tampered with the meter cock after it had been turned off, and that through this means the gas got into the plaintiff's cellar. The question was summed up in this manner by the court: "The principle applicable to the defendant is this, that, in the conduct of its business as a gas producer and furnisher thereof to its customers, it is bound to use such ordinary skill and diligence as proportioned to the delicacy, difficulty and nature of that particular business. The evidence in the record before us is, that the gas was cut off at the meter cock in the plaintiff's cellar, instead of at the service cock under the curbstone; that it was safer to cut off the gas at the service cock than at the meter cock; that, if the gas had been cut off at the service cock, the explosion in the plaintiff's house could not have occurred."

On the trial a judgment was given non-suiting the plaintiff. The jury was not given an opportunity of passing on the question, but it was decided, as a matter of law by the court, that the plaintiff did not make out a case of negligence. The appellate court reversed the decision on the ground that there was enough evidence of negligence to submit the question of liability to the jury, and the case was sent back for a new trial.

Gas Company Employee Looking for Leaks with Match.—A gas company may be held liable for a fire resulting from the act of an employee, looking for a leak in a gas pipe with a lighted match, and finding it. This was held in the case of German American Insurance Company *v.* Standard Gas Company; 34 Misc. (N. Y.) Rep., 594. A customer of the defendant company notified the company that he wished a drop light placed on his desk in his store. The company sent one of its men to make the necessary connections. After he had finished his work and left there was a strong odor of escaping gas, and he was sent for again. He undertook to locate the leak by means of a burning match, and in this way started a fire which damaged the premises to the extent of $1,000. In holding the company responsible the court said: "The defendant undertook the work without compensation, and claims, therefore, that its liability was merely that of a gratuitous bailee, and that, to entitle the plaintiff to recover, gross negligence on the part of the defendant must be proved. Whatever technical relation existed between the parties respecting this particular job, the defendant was bound to exercise the care which the nature of the work required. Gas is explosive, and leaks in pipes are apt to cause the ignition of escaping gas and produce serious fires, and a higher degree of care and vigilance is required in dealing with a dangerous agency than in the ordinary affairs of life or business which involve little or no rish of injury to persons or property. The defendant sent its workman, for whose acts it is responsible, to do the work in question. His attention was called to a smell of gas.

He knew that 'sand holes' might exist in the pipe, for such things, he testified, were not uncommon. Yet he placed a lighted match over the pipe, thus igniting the escaping gas and causing the resultant damage. Such conduct on the part of one knowing the consequences was negligence, and renders the defendant liable."

The defendant gas company in Lannen *v.* the Albany Gas Company; 44 N. Y., 459 (1871), upon being notified that there was a leakage of gas in the cellar of the house occupied by the plaintiff, sent one of its workmen to repair the pipe. The evidence tended to show that the break in the pipe had been caused by piling coal against it. As soon as the workman entered the cellar he struck a match. How the workman fared does not appear in the report of the case, but the plaintiff who was upstairs was badly injured by the explosion which attended the striking of the match. The Company was held liable. It was bound to send a competent agent to do the work; one who knew how to conduct himself in the presence of gas, as the company had been informed before the workman was sent that gas was escaping. If the workman was incompetent and ignorant of the explosive nature of gas, then the Company was negligent in selecting such an agent, or in not properly instructing him before he was sent If the workman was competent, then the Company was responsible for his carelessness. The workman was in no way the agent of the plaintiff, nor did he become such from the fact that his examination was for the benefit of the occupants of the house.

It was contended that some occupant of the house in which the plaintiff lived was responsible for the break in the pipe, and, therefore, responsible for the explosion which followed; but, conceding that some one other than the Company was responsible for the break in the pipe, it did not follow that the Company was freed from liability as to the explosion. Said the court: "As well might an unskilled or careless surgeon, called to ascertain if a fracture existed and its location, excuse himself for negligence in respect to it by proving that his patron, being intoxicated, fell from a horse and caused the fracture. * * * The accident was caused by the explosion, and that was caused by the lighted match; and the only negligence in any way connected with the accident, was lighting the match in the cellar. Suppose there had been no gas in the cellar, and Lannen (plaintiff's father) had placed an open keg of powder in the cellar, and had informed defendant and its agent that it was there, and the agent had carelessly thrown a lighted match into it, and thus blown up the house; could it have been said in any legal sense, that the negligent act of placing the powder in the cellar contributed to the accident? To any such charge of negligence it would have been a sufficient answer that the defendant and its agent were notified, as they were in this case, that the explosive element was there."

Leaving Key to Gas Main in Street.—In the case of Louisville Gas Company *v.* Gutenkuntz; 82 Ky., 432, 6 Ky. Law Rep., 469, the plaintiffs, desiring to stop the use of gas in their house, notified the Gas Company to cut off the supply. An employee of the Company was sent around and he shut off the gas by means of a key several feet long which he inserted in a box attached to the service pipe. After turning off the gas the employee removed the meter and tested the pipes to make sure that the gas had ceased to flow. After he had left with the meter, he remembered that the key was still inserted in the box attached to the service pipe on the street, and so he went back for the key and carried it away with him. The same evening, one of the plaintiffs, Mrs. Gutenkuntz, finding the smell of gas in her room decidedly unpleasant, proceeded to investigate the cellar with a lighted candle. An explosion followed which injured her seriously. The employee was confident that the flow of gas was stopped by him, and equally confident that he did not turn the gas on again when taking the key out. There was no evidence that any other person tampered with the key while it was left in the box.

It was held that the Company was liable. It was argued in behalf of the Company that, while its employee was guilty of negligence in leaving the key inserted in the box, that did not render the Company liable for the reason that it was not the proximate cause of the injury. The brief in behalf of the Company contained the following: "Suppose someone passing along the street had pulled the key out of the box and struck a bystander with it, thereby inflicting a severe wound. Would the Gas Company have to respond in damages because its agent had committed an act of negligence in leaving the key on the sidewalk? Why not? If the key had not been carelessly left by its agent, the party injured would not have been wounded with it." Of course, the Company would not be liable in such a case. And from this it was contended that the Company would not be liable for the injuries to the plaintiff.

But the court held that the two cases were not analogous. "It was the duty of the Company, through its agent," said the court, to "remove the meter from the cellar of the plaintiff, and, in doing so, to exercise such care as one of ordinary prudence and judgment in the discharge of such a duty would be required to exercise for the safety of the dwelling and family from this explosive substance. This duty he partially performed, but left the key in the box on a street of the city exposed to the handling of those passing by, whether from motives of curiosity or from a desire to injure others, when the movement of the key in the one direction or the other, would start the flow of gas into plaintiff's cellar. The handling of the key by others, when left in such an expo ed condition, was the ordinary and natural result of the negligent act, and that fact any man of ordinary judgment should have foreseen."

[Proceedings, as Furnished by the Secretary—Continued from Page 90.]

PROCEEDINGS, TENTH ANNUAL CONVENTION, WISCONSIN GAS ASSOCIATION.

Held in Hotel Pfister, Milwaukee, Wis., May 17 and 18.

The President—We will now take up the question to which reference was made in the notice, based on the Railroad Commission's decision as regards minimum size of main which it is proper to lay. The Secretary then read the following letter on

A Decision of the State Commission in Respect of Diameters of Mains,

by Mr. J B. Klumpp, of Philadelphia.

Milwaukee, Wis., April 12, 1911.

To the Secretary of the Wisconsin Gas Association: In reply to your letter of April 6th, to the members of the Association, in reference to your "Efficiency" discussion, I doubt if I will be able to be in attendance at your sessions in May, but should I be in the neighborhood of Chicago, I shall be very glad to come up to Milwaukee and spend a day at the meeting.

I have read with considerable interest the decision of the Railroad Commission, of Wisconsin, in reference to the order concerning the Racine Gas Light Company. With regard to your inquiry concerning the laying of 2-inch pipe and smaller, under the ordinary so-called low pressure distribution system, we have practically abandoned the laying of any pipe of less than 4 inches, cast iron, except where there is a very short run on a dead end; for instance, up an alley on which we are sure that the maximum consumption will never exceed the capacity of the 2-inch pipe with a very small loss in pressure. The durability of a 4-inch cast iron main is so much greater than that of a 2-inch wrought iron main that we think the saving in repairs and maintenance will warrant the extra expenditure; and, as a rule, we never can entirely anticipate the growth of business that will occur on a line, so we are guided by the general principle of laying a 4-inch as a minimnm.

The drastic requirements of small pressure losses, that have been imposed upon some companies by recent city ordinances, demand that the gas shall be supplied to the consumer with a minimum loss in pressure, and these requirements necessitate our laying mains that will supply the required quantity of gas with the least loss in pressure, hence one of the reasons for not laying less than 4-inch pipe.

In comparing 4-inch and 3-inch cast iron mains, the extra cost of the 4 inch is more than warranted in getting increased capacity over the 3 inch, at the same time giving a line that is less liable to break, and which will withstand better any settlement in the ground due to adjacent excavation. At the same time, they form a better main for tapping for service work. Our experience in the past has shown that we have removed many miles of 3 inch and under, and replaced them with 4 inch or larger.

The President—Mr. Klumpp's statement at the end of his letter about agrees with what I always supposed was the case, that as a rule, if a concern in a fair sized town or small city that was growing laid a great deal of 2-inch main it was pretty apt to regret it. While I have no personal experience wherewith to back that up, I would like very much to hear from anyone who had occasion to remove small mains, on account of the excessive drop in pressure, as the business developed. This question really interests all small companies, the owners of which naturally do not care to make an in-

vestment on which they will not be allow to make a return; and, on the other hand, if it is injudicious, under anything save exceptional circumstances, to lay a 2-inch main, or anything less than a 4, why it is important that what testimony can be brought to that effect be laid before the Commission. I very much hope we will be able to get some experience along that line that will be of service.

Mr. E. G. Cowdery—It seems to me that in our cities it is a pretty well established fact that one cannot foresee where the growth of that city is going to take place, and it is a further pretty well established fact that anyone picking out a location for a residence in a city, upon the average, that location does not remain a good location more than 10 years; that is, one building a house in a certain location of the city, with the belief it is the best location, and in 10 years' time, may have to abandon it to build another one in another place. This only illustrates that no gas company can foresee where the growth in a city is going to take place. If it tries to foresee and put small mains, like 2-inch mains, for instance, in a location that it does not believe is going to grow much, and they put 4-inch, and larger, mains in places which it expects are going to grow more, the probability is, in a large majority of cases, it will be mistaken, for the growth will be where the small mains are, not where the large ones are. It is also a fact, if it takes a little cross street, if only for a block, and expects that that is not going to have much growth for many years, and it can afford to put a small main in there on a chance, it may happen within 3 months a large consumer will locate there who wants to use gas in quantities requiring a 3 or even a 4 inch service. The main is not large enough to supply the demand, and the main must be changed. So it is our inability to foresee in a city that which is going to take place, together with the comparatively small extra cost of a 4-inch main over a smaller one, that causes gas companies to follow the pretty general plan of adopting 4 inch as a minimum size. I think the greater the experience of the men in the business the surer they are to adopt some such rule as that.

Mr. R. B. Brown—I have had considerable experience, covering plants of various sizes, all the way across this country, for the last 15 years, on distribution systems, and never found a case where a plant that adopted the policy of laying small mains has not eventually been obliged to abandon either the policy in toto, or at least to abandon such stretches of mains that it was not out financially on the original proposition. I think this is an important question for us in Wisconsin to-day, and I regret exceedingly that the Commission should have taken the position in this Racine case which apparently tends to uphold a feature of engineering in gas distribution systems that is absolutely wrong. Now, the Commission, I am sure, were they better advised, would have taken the opposite position. Of course, they, in their protection of the public, must feel bound to condemn any unnecessary expenditure of money, but, on the other hand, the position taken by them in requiring adequate service must also be defended from the engineering end, and it must also be protected from the engineering end. You cannot have adequate service if you don't have adequate supply, and you cannot have adequate pressure and good service to all consumers if not ready to supply anything they wish. This question, as Mr. Cowdery stated, is one of inability to anticipate the requirement of a district, or of a block or half block, and I do not think the engineers of the Commission, who had charge of that Racine investigation, could have appreciated what that means. It may be true that in some portions of Racine the criticism was justifiable. We have in Milwaukee so many instances (I would not take your time to mention them) where a neighborhood that had nothing but small dwellings 15 years ago, to-day has dwellings with 50 to 60 apartments in a single one. In many of those cases the streets were paved with concrete base pavement. Now, supposing we had had 2-inch mains in those streets. Such pipes might have taken care of the needs of the original cottages built there. That diameter would have taken care of and given them service such as they were accustomed to in those days; but one of these apartment houses was put up. And do not assume that was only one block of 2-inch. If your policy were to lay 2-inch, it might—probably would mean—when that apartment house was put up you would have to go back to your big feed, and you might have to put in a mile of pipe to do it; wherefore the cost would be sufficient to offset all the savings made in an entire year. There are two towns in this State (one of which is mentioned in the report) the report from which shows the percentage of 2-inch main put in in the different cities in Wisconsin, in which one of their troubles to give service in the last 5 years (and well known to the Commission) has been the fact a former management believed 2-inch pipe was large enough. They put in a very large proportion, and nearly all the money spent in distribution in that city in the last 2 years has been spent in building up feed on that 2-inch main to take care of it. In Racine I happen to know that since this valuation was made (I will not give the exact amount because I haven't the figures in mind), but it is in excess of 2 miles of 6-inch mains having been laid to feed the 4-inch. Such a situation we have in Milwaukee to day. For a great many years Milwaukee has not laid smaller mains than 4-inch, and yet, in some of the outlying districts where we do not have those complications at all, and have a straight network of 4-inch main, we have had to put in larger mains to feed the 4-inch, because it was not big enough. The method of arriving at the individual or instantaneous demand per consumer used in this Racine case I do not remember, but I do know we have records on a great many blocks that show their figures are, in individual cases, absurd. It is so far out of the way we cannot consider it at all. The development of reasonable priced automatic water heaters is a thing that is a fact to-day—it is not in contemplation—and we are going to have cheaper and more efficient water heaters of that type almost immediately. Even to-day the instantaneous demand occasioned by such appliances is a very serious problem to the engineer who has charge of a large distribution system. We have in a number of our residence districts—not the higher class districts, but the middle class—blocks where 5 or 6 of these heaters are placed. The diversity factor mentioned in that Racine decision does not exist to anywhere near the extent apparently supposed by the arguments and logic with which they view it. We find, to the contrary, in some of our districts, where the houses are mainly occupied by laborers, that the diversity factor is not shown at all. People living in a given district are of much the same class, their hours are about the same, they start preparing their evening meal (which is the worst, of course, coming on the peak of the fuel and lighting load) about the same time. We find, through our district governing system, that whole districts bring their peak load to bear within a few minutes almost; that is, within 15 minutes. Now, when we talk about 19, 20 or 25 feet to the consumer, it does not begin to cover the situation at all. If you add to the actual average peak, which often runs above 60 feet to the consumer, that from the installation of instantaneous water heaters it is difficult to tell what may be an ultimate demand. We are getting instantaneous water heaters very rapidly now, and, as they take upwards of 200 feet per hour for the time they are on, anyone must know the instantaneous water heater is very much in operation during the peak hour. It is used for kitchen purposes and for washing. In fact, we find the instantaneous water heaters are on peak all the time. Where they are in use we have, in many cases, had to enlarge our services, and now it has become a rule that wherever an instantaneous water heater is to be set and one of the old smaller sized services is found, the service is enlarged immediately, because knowing we will have to do it sooner or later, we do it at once. Another objection to a main of 2-inch size or smaller, is the deposit in the house pipe service. No matter what the character of gas you are distributing, we have to blow out periodically into the main. We had occasion a few years ago to take up a 3-inch main that had been down 20-odd years in this city. We found under every service that that 3-inch main was practically filled with the deposits which had been blown out of the service pipe. A 2-inch main will not stand that for any time at all before losing its capacity, and I do not know of any practical way to clean out a main in the street. We have tried compressed air and water, and, while you may possibly stave off the evil, it is not very long after a main gets in that condition before it has to come out. I do not think it is a question of 2-inch main at all. A main of that diameter, outside of its use occasionally in an alley or in a short dead end street, cannot be considered. In the larger cities, and in the smaller ones as well, one has to use particularly good judgment if one uses 2-inch main and expects to keep it there. Just as Mr. Klumpp stated in his letter, you will find 3 inch mains are laid in the smaller cities in many places. In larger cities I do not believe any place is safe to put down smaller main, except as indicated for 2-inch. So far I have been dealing in generalities. Coming to concrete cases, we have had during the last year to take up no less than 4 pieces of 2-inch run into alleys which, when we run them in, had enough capacity to take care of the consumption. In one case a carpenter on that main hooked up a gas engine which put the main out of business. The city, of course, had just paved that alley with a permanent pavement, and between the ill-feeling and the row we had with the city, together with what we paid for the repaving and the necessity for tearing up and putting in a larger main, we did not feel greatly pleased. We rather thought

it was the last time we would try that trick. Before we got over the trouble, in a case on the south side, where an old factory building, which never took anything but a small amount of fuel gas, was rented to a clothing concern, we put in a very fine installation of lights. But the peak came on in such a way it lapped over everybody else's peak, so the 2-inch had to come out of that alley. Such is our experience that clear through, wherever we put in small main, we had to take it out. Mr. Klumpp might have gone further than he did in his letter. Their practice in some of the suburbs of Philadelphia is to put in a 6-inch minimum, and couple thereto a minimum of 1¼ inch service. It has been said that both main and service were larger than necessary. At one time I was connected with a large Company in the East, running 1 inch service as a minimum; that was progress in those days, for most companies were laying ¾-inch. When the question of increasing to 1¼-inch was first discussed there was quite a bit of criticism. To-day, in all our downtown districts and the larger residence ones, we are laying 1¼-inch services; and we need them, too. Getting to the point where you have to go from ¾-inch to 1-inch service, and from the latter to 1¼, and from that to 1½-inch service, and the question of 2-inch main pipe comes up for discussion, I think it is a mistake to give it serious consideration. I think if Wisconsin goes on record in favor of small mains we are taking a backward step; and any man who thinks he can follow that policy to-day, and adopt it safely, is going to be fooled.

Mr. Cowdery—One point should be given consideration in this matter. Take the average city having a network of 4-inch pipe; under average conditions those pipes must be fed by a large feeder, at least every ½ mile. In Chicago for years they have laid nothing smaller than 6-inch pipes, and out of the 2,600 or so miles of mains, an exceedingly small proportion is less than 6. I do not remember the figures, but I think it is perfectly safe to say there are less than 100 miles lower than that size. It so happens that a network of 6-inch pipe takes less feeders; yet in many districts there are no larger feeders than the 6-inch type for a distance of 2 miles. The service is perfectly satisfactory, so those figuring on the minimum size of pipe to use can very easily figure that the larger the minimum adopted for general distribution the fewer feeders are necessary. On the other side, in adopting a plan of laying 2-inch pipe you would have to feed it at each end of each block, since it would not carry very far, with the result that probably at some time one-half of those streets with 2-inch pipe would have to be replaced with something larger, and, to my mind, no practical man with any experience at all would put down 2-inch mains, save in such very rare instances as have been cited, and it should come out at less than 1 per cent. of the entire distribution. Mr. Brown speaks of the services. In Chicago for many years it has been the practice to lay nothing smaller than 1½-inch. If we have to adopt the plan of laying 1¼-inch services, how comparatively ridiculous then it is to say that 2-inch mains are the proper ones to lay. I cannot see how any man has the slightest thing to back him up in the policy of laying 2-inch pipes on any low pressure distribution.

Mr. Taylor—I would like to add something along Mr. Brown's line. Wausau is one of the older plants of the State, and when it was built a majority of the mains were 2-inch, a great many of them were 1½, and some of them were 1¼. Up to 4 years ago they were carrying an average pressure of 2½ inches, which was fairly good. Then we commenced to have trouble, especially at the peak—an 8-inch into a 6-inch, into a 4-inch lead from the works—the trouble being experienced in the residence district, and especially on the west side. The city is divided by the Wisconsin river, and practically the business is on that side. Over there, on the peak of the load, the pressure would drop to an inch, the result being the mantles would be only half filled, and complaints followed. Our engineer instructed us to put in a Westinghouse, high pressure pump. That was done with good results. We ran it at the peak of the load, and also maintained the pressure to 3 inches, with good results. From then on we have had to increase our pressure. Two years ago our pressure was increased to 3 inches, and to day we are carrying 4-inch to supply those 1½ and 2-inch pipes. I will mention an incident. In one block from the main business district, from 3d to 4th street, having ordinary stores on only one side, and using only a few arcs, the post office is at one end the hotel being at the other. We installed a full kitchen outfit in the Bellis House and an automatic water heater in the post office. Then our daily paper publishers moved into one of the buildings on the line, installed Mergenthaler machines, and a melting pot for type metal. Next we sold automatic water heaters to two of the barber shops, and a third one to the drug store. The result was that last winter we had to take the main and lay it over the ground, from the 6-inch on 3d street, and dig in through a cellar, back to a 2-inch service reinforcing that, and even then, at the peak of the load, we dropped an inch of pressure in that one block. The consumers on its line were using from 125,000 to 150,000 cublic feet a month. Such a condition we are up against in a single block. There are five other blocks in different sections of the city fed by 1½-inch pipes that must be removed. These are in the residence districts, where ranges have been hooked up. A like removal will have to be done at other points sooner or later. Mr. Eames, our President, has given absolute instructions not to lay anything less than 4-inch main under any conditions, with 1½-inch services.

The President—Is there to be any further discussion?

Mr. Kimball—One table in that Racine decision shows the average cost per mile of main for the different cities of Wisconsin, and the comparison is made to show that Racine has a higher investment per mile than any other city. Most of the companies in the State have a large mileage of 2-inch pipe. Comparatively little of that 2-inch pipe was put in because the engineers of the different companies agreed with the Railroad Commission as to size, most of that small pipe being put in because the companies did not have the capital at the start to put in pipe as large as they would like to have put down. In Kenosha, considerable 2-inch pipe has been replaced, and our cost per mile compares very favorably with Racine. The idea in the Racine decision, as I read it, is that it would be more profitable to put in high pressure boosting mains than to put in this large amount of 4-inch pipe with the idea of it partially serving as feeder capacity. That specific question came up in Racine several years ago, when Mr. Baehr reported on it. A high pressure system supplied Kenosha at that time. The question involved was whether they should lay larger feeder mains, or install high pressure. Mr. Baehr, in his report, showed the cost of pumping gas was considerably more than the interest and depreciation in using the larger low pressure mains. In other words, he advised against making a combination system in Racine, using some high and some of the low. As to our experience with 2-inch main (we haven't got much of it) we had some 3-inch cast iron pipe practically all of which has been replaced. We had innumerable breaks on account of its not being mechanically strong enough.

Mr. Taylor—I would like to ask if Mr. Brown knows anything in regard to the outcome of Mr. Baehr's work in Denver in 1900. He laid out 14, 16 and 18, with 6 or 8-inch mains, and ran 2-inch laterals through the entire residence district. At that time it was considered a very good thing. Have you ever heard anything as to the result?

Mr. Brown—Three years ago a large stretch of that main was either taken up or tied in. I do not want to speak positively, as I haven't the figures. About the same time they laid it out at Madison. A large amount of that has been fed at intervals since. I do not know of any case where a deliberate 2-inch lay-out has been put down that was not since taken out or relaid. In talking to Mr. Huddle about this Racine case, he said he believed a study of the matter of the Racine distribution system would justify some of the remarks made by the Commission. I think he also is willing to say I misconstrued the report. I thought that report—and I am still going to have an argument with Mr. Huddle after the meeting—pretty definitely advocated a larger percentage of 2-inch main; but I may be mistaken about it. Mr. Huddle advises me that I am.

Mr. Huddle—The report of the Racine decision does not intend to apply to other conditions than for Racine, and is not a general attack on the laying of 4-inch mains, for there are certain conditions in which it would be foolish to lay other than 4-inch mains; in fact I think there are conditions in Racine where 2 inch mains could be laid. The map of the Racine distribution I believe shows that. As far as an analysis of the average demand is concerned, our study would indicate, though, that in Wisconsin towns, the size of Racine, a maximum demand of 20 feet apparently does satisfy the conditions. I think our figures will bear this out, and the diversity factor in the smaller towns is very large. I am not able to speak at all over what the condition would be in a large city. I think with a larger city the conditions could be entirely different. Another thing, too, that might be considered, is supposing you did have to replace the 2 inch main, conditions can be assumed where it would pay to install a 2-inch main first, if no pavement was there.

Mr. Brown—If you can be sure there will be no pavement there when you have to remove it, I agree with you.

Mr. Huddle—Neither the report nor the decision, intends to advocate that nothing other than 2-inch main should be laid as a matter

of general practice. The table of the mains laid in the Wisconsin cities tended to show that the practice in the past had been to lay more 2-inch mains than shown in Racine. There is another phase of it. Several decisions were made in Wisconsin on the basis of the old investment and rates were cut on the ratio of that. Where the investment is very much more liberal, an injustice would be done to either one company or the other. A town with a cheaper constructed distribution system should be given an additional allowance to reinforce its distribution system. If our findings are not in accordance with the facts and good practice, I think there is no question but what the Railroad Commission of Wisconsin is willing to change its position whenever it finds it was in the wrong.

Mr. Cowdery—I have often heard it stated that it is very unfortunate our foresight is not as good as our hindsight. In none of these would it be impossible for the Commission, its representatives or anybody else to make an examination and criticize certain conditions. Not a town is in existence where that could not be done, but I still go back to the original proposition it is not possible to go ahead and forecast all the conditions correctly so that some years hence everything shall be exactly right. Hence, it is cheaper and better for the service in every way, in a city, especially of 25,000 population or upwards, to adopt a minimum size of main of 4 inches. No one will make any mistake doing so, but will surely make a mistake doing anything else.

Mr. Walker—I am an old chestnut in the gas business, and it was pretty thoroughly impressed on me in Milwaukee about 40 years ago that the old mains which were laid by the Milwaukee Gas Company previous to 1869 were too small. My father impressed it on me that no main in the city of Milwaukee should be laid in any street, no matter what we were furnishing, nor who was on the end of the main, nor where it led to, that should be less than 3 inches even at that time. We had a lot of 2-inch cast iron main right here in Milwaukee, and found, in 9 cases out of 10 where we had to furnish people with gas, that it was insufficient as soon as they began to extend one end of that main. The difference between the area of a 2-inch and a 4-inch pipe being so clear, and the difference in cost between the two so small, why should any gas company in this or any other state, hesitate at the difference, if it expects the town to grow. We had calls upon us 40 years ago in Milwaukee to lay mains where there was actually a dead end. Each of us knows in the distribution of gas what a dead end means to the consumer at the tail end of the main. It means that if the people who live on the other side of that dead end commence to increase their consumption they draw away from such dead end. Now, then, the only remedy is to follow that scheme to the finish, so that the men who you are supplying and from whom you are taking money, must have the same service as the man better favored through living nearer to your works. The later policy of the Milwaukee Company is to change every small main found in outlying districts. Such has not only been its policy, but also the absolute necessity. Not only so, but to connect up every dead end to a circulating main. In the distribution of gas throughout a city, and especially at the present day, where every illuminating and fuel burner is run on the Bunsen principle, for the best results to be obtained from that burner it is necessary to have the highest pressure possible, and I only regret to-day that the Milwaukee Gas Company does not double its pressure. I, unfortunately or fortunately, am looking for the industrial end of the business, and if I can double the pressure on a man's service, I can eventually give him the desired results without the intervention of power, letting him have a burner that will give him results desired. I can decrease the size of the opening and keep up the amount of gas that he requires by the pressure behind it. The point is simply this, as far as the matter of the distribution of mains through a town is concerned. Outside of Milwaukee you are reaching towns which, though smaller in population, nevertheless are peopled with a progressive population, so you presume you are going to enlarge your service and increase your income. The consequence is that it is necessary to provide for that at the start. A block in which there are only three consumers to-day, is not going to lie idle forever, and some other block is going to build up. Provide for that block, and when you get the other block provide for it too. Then, when you come to extend your mains you do not have to go back to the general system and put in a large main. I believe thoroughly in the practice of putting in large mains, and, if possible, on account of the situation of the town, of putting in one large distributing main, dividing it off into sections. Then when the time comes that your pressure at the end of that main it is so arranged that you will have a chance to look around and bring everything into a common system, having a large amount of service area in your main.

The President—Will Col. Pratt be willing to speak a few words on the subject?

Col. Pratt—I have not very much to add to what has been said. I think I am principally in accord with the ideas advanced by Mr. Brown and Mr. Cowdery. Looking over the field, and the matter of small companies, I think it is possibly a matter of money more than anything else that compels the latter to lay small mains. In my experience I never laid a main smaller than 4 inches that I did not at some later time regret. We convince ourselves that a 2-inch or 3-inch pipe will possibly render service for all time, and we do that perhaps because we can buy 2-inch pipe cheaper than 4-inch; it is a matter of finance. But we do it, and do it with fear and trembling; and, as a general proposition, we usually regret it. Such has been my experience extending over a number of years, and I feel that in any town or city of any size or consequence where a pipe of less than 4 inches is laid it is a mistake. and the only time we are persuaded to do it is simply where it is a question of cost. I know cases where companies are dependent for their extensions and improvements upon their earnings and profits, so when it comes to the making of extensions there may be only a few houses, and, as Mr. Walker explained, these houses can be supplied for the time being with 2-inch pipe, and as we want all the business and meters we can get, we either convince ourselves or are convinced by the manager of the company, that 2.inch pipe can take care of the business—in figuring up the cost we find 2-inch pipe will cost $700 or $800, while 4-inch pipe will cost about $1,400. We like to keep that $600 in our pocket, and consequently lay the 2-inch pipe, and later on as a general proposition, regret it.

The President—In other words, the 2-inch pipe is a temptation, not an investment. Is there anything else on this?

Mr. Kimball—In that Racine decision the general tendency, as I read it, was to criticize the whole Racine plant, that it was overbuilt, as far as capacity was concerned.

Mr. Butterworth—I recently read this Racine decision, and the impression I got from such reading was entirely different than the impression that seems to prevail here to-day, in regard to the 2 or 4-inch main. The impression I got, although I read it hurriedly and perhaps did not give it the thought of which it was worthy, from the reading was that they used 4-inch main for cross connections. I think they used the expression "short cross connections," one block, possibly two, which, at the time of reading it, I certainly heartily approved. I did not understand, as the impression I gather here is, that it in any manner or means defended any extended 2-inch pipe. It certainly implies that it would be foolhardy to run a 2-inch pipe any great distance. It is absolutely certain, as Mr. Brown said, that in taking a service of any dimension off from a 2-inch pipe, if you wish to keep the service in proper condition, you are going to blow it out toward the 2-inch pipe. Then your 2 inch main becomes a service, that is, performs the functions of a service, and you have to blow that out. Next, your blower breaks down before you go any further. I would like to be set right on that impression. The impression I got is that the Commission recommended a 2-inch cross connection to be made instead of a 4-inch, qualified to where the 2-inch pipe would furnish an ample supply of gas for a reasonable time in the future; but I do not think, from any of their reports, that they advocate anything so absurd as an extended 2-inch system under low pressure.

Mr. Brown—I would like to add a further thought to this discussion. We may have misunderstood that report, and be all wrong. I have not been in the gas business very many years. The first time I ever heard the figure "consumption per capita," somebody in an eastern town I was working in was discussing some other city that was doing the remarkable work of selling 4,000 feet per capita, and wondering how long it would be before that record would become the standard. To-day we do not think 10,000 is much out of reach. We can almost get our fingers on it. When will it be 15,000? In my experience the peak load has increased faster than our total sendout, in spite of all the industrial work we have done. I do not know where we will land, but the 4-inch main is not going to carry us very many years. That I know.

The President—Gentlemen, we have decided, subject to your approval, that we will not take up any other paper this afternoon. It is a little early to adjourn, but the gas light company has in its office something radically new in the way of a hotel range, something that

(*Continued on page* 122.)

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NEW YORK, MONDAY, AUGUST 21, 1911.

[Official Notice.]

Joint Gas Convention, Panama-Pacific Exposition.

Pacific Coast Gas Association,
Office of the Secretary,
445 Sutter St., San Francisco, Cal.,
July 28, 1911.

To the Committee on Joint Gas Convention, San Francisco, California, 1915: At the Eighteenth Annual Convention of the Pacific Coast Gas Association, and on motion duly made and seconded, a resolution was adopted to the effect that the Pacific Coast Gas Association invite all Gas Associations throughout the United States to hold a joint convention in San Francisco during the Panama-Pacific Exposition, in the year 1915, with a view of making it the greatest congress of gas men that has ever been convened. In compliance with such resolution, President Frank A. Leach, Jr., of Oakland, Cal., was instructed to name a committee to undertake the same, and has selected the following members of the Pacific Coast Gas Association to act upon such a Committee:

Henry L. Doherty, Chairman, 60 Wall street, New York city.

Thos. J. Cunningham, Editor American Gas Light Journal, 42 Pine street, New York city.

Lucius S. Bigelow, President "Light Publishing Co.," Buffalo, N. Y.

E. C. Brown, Publisher, "Progressive Age," 280 Broadway, New York city.

John F. Parker, Sales Manager Eclipse Gas Stove Co., Rockford, Ills.

A. C. Humphreys, President Stevens Institute of Technology, 165 Broadway, New York city.

Walton Clark, General Superintendent United Gas Improvement Co., Broad and Arch streets, Philadelphia, Pa.

Alphonse Mason, Welsbach Company, Gloucester, N. J.

Henry H. Hyde, Manager Tacoma Gas Light Co., Tacoma, Wash.

Leon P. Lowe, 626 Pacific Building, San Francisco, Cal.

As the site for the Panama-Pacific Exposition has now been duly selected, and San Francisco will at that time have a civic center with a large Auditorium building, it will at once become known throughout the world as the "Convention City." With this in view, it is sincerely hoped that the Committee will be able to take up the subject in a general way at once, in order that they maybe able to make a preliminary report as to progress, at our Nineteenth Annual Convention, which will convene at Oakland, Cal., September 19th, 1911.

The Panama-Pacific Exposition will undoubtedly be the greatest of its kind the world has ever seen, and San Francisco, having already made a reputation for itself in doing that which it undertakes to do in a most befitting manner, it is hoped that such work as this Committee can accomplish will bear fruit, and in the end be the means of bringing together all members of the profession in what has already been termed "The Greatest Congress of Gas Men that has ever convened."

Very truly yours,
John A. Britton, Secy.

[Official Notice.]

Experience Department, Pacific Coast Gas Association.

Pacific Coast Gas Association,
Office of Experience Editor,
San Jose, Cal., June 24, 1911.

To the Members: The Nineteenth Annual Convention of the Pacific Coast Gas Association will be held in Oakland, September 19, 20 and 21. The Experience Editor of the Association is in despair. Cast him a line; come to his rescue, for he needs help. To the notices sent out by the Secretary, few have replied.

We know that every gas man has had at least one experience during the last year that would be of interest to us all. Will you kindly respond at once? We know you are busy; gas men always are. And busy men have many experiences worth telling.

Sincerely yours,
John D. Kuster,
48 E. San Antonio street. Experience Editor.

[Official Notice.]

Bureau of Information, American Gas Institute.

Office of the Chairman,
Schenectady, N. Y., Aug. 9th, 1911.

To the Members, American Gas Institute: The Committee in charge of the Bureau of Information, having received comparatively few inquiries so far, earnestly urge that all the members of the Institute, having questions or problems which they would desire answered or solved, will please forward them to the Committee at as early a date as possible, as we are anxious to place the answers in the hands of those making the inquiry, getting all these inquiries compiled in time for the report of this Committee at the next annual meeting.

Please do not assume that there are others who are going to bring forward the questions, the information regarding which you would like to have, but take the initiative and write the Committee at once regarding any questions which you would like answered, and we will endeavor to gather as much accurate information as possible on the subject in which you are interested.

M. Webb Offutt,
Gas and Electric Building, Schenectady, N. Y. Chairman.

[Official Notice.]

Twentieth Annual Meeting, Michigan Gas Association.

The Twentieth Annual Meeting of the Michigan Gas Association will be held in Detroit, Mich., September 20, 21 and 22. Headquarters will be the Hotel Pontchartrain. A most interesting programme of papers has been prepared as follows:

"The Function of Tar in the Condensation of Coal Gas," by Prof. Alfred H. White, and the Holder of the Scholarship.

"Advertising: A Brief," prepared by C. A. Brownell.

"Experiments in the Taylor System of Shop Practice, by "Ben." M. Ferguson.

"A Purchasing System for a Gas Company," by Albert G. Schroeder.

(a) "Use of Reinforced Concrete in a Gas Works," by H. W. Douglas.

(b) "A Concrete and Wood Condenser House," by E. F. Lloyd.

"Filament Ignition of Gas," by Prof. Howard Lyon.

"Development of the Hotel and Restaurant Gas Appliance Business," by W. F. Clausen.

"Directions for the Recovery, Concentration and Testing of Ammonia," by James A. Brown.

In a city the size of Detroit there is so much of interest to one and not to another, and so little that can be covered in the time allotted, it has been decided to make the entertainment features as elastic as possible to the end that all tastes may be suited.

The central feature of the programme will be two theater parties, one evening to be spent at Detroit's big vaudeville house "The Temple," and the other at whichever of the regular theaters offering the best programme - the booking for that week being not yet reported.

Wednesday and Thursday, the 20th and 21st, will each have two business sessions, and it is the intention to hold these on schedule time so as not to make it necessary to interfere with the other arrangements.

At the close of the afternoon sessions, on Wednesday and Thursday, automobile accomodations will be provided for all holders of entertainment tickets, either gentlemen or ladies. Automobiles will be at their disposal, for 2 hours, from 4 to 6 o'clock, to make such a tour of the city and visit such points of interest on the American side of the river as they may desire, dropping them at any hotel or inn desired at 6 o'clock. Parties for the automobile trips should be made up well in advance in order to insure the most congenial company to everyone.

Friday, the 22d, will be devoted entirely to factory inspections, including probably the Packard or the Ford automobile plants, various gas works, stove and appliance factories, special industrial installations, etc., and members desiring to visit any particular point on this day will insure proper accommodations by notifying the secretary well in advance.

For the convenience of those attending, the entertainment programme will contain a complete list of all points of interest, as well as the best places to lunch, dine, etc., together with minute directions for getting there. There are so many places on both sides of the river reachable by automobile, trolley and boats, which are both interesting and beautiful, that a large attendance should be brought out, not only among the members, but of those from a distance as well.

For the convenience of those who may desire to stay over for a side trip Saturday and Sunday, we will give a list of boat schedules to the Flats, Put-in Bay, Cleveland, Buffalo, Niagara Falls, etc.

We are endeavoring to arrange this entertainment programme so that there will be no temptation to neglect the technical sessions, for we have a programme which will be interesting, important and of value to those in all departments of the gas business.

The entertainment programme became an assured success the moment the committee appointed Messrs. R. Shacklette, L. B. Young and W. S. Blauvelt.

Yours very truly,

GLENN R. CHAMBERLAIN, Secretary-Treasurer.

BRIEFLY TOLD:

THE NEW JERSEY STATE GAS ASSOCIATION.—The second meeting of the New Jersey State Gas Association (it was really informal in method and work) was held in the Coleman House, Asbury Park, N. J., the afternoon of last Wednesday. There was a fair attendance present. The meeting proper (which was held in the well-appointed Concert Room of the Coleman House) was preceded by a satisfactory luncheon, and it was not until 2:30 P.M. that the President (Mr. Wm. H. Pettes, of Newark) sounded the call to order. The set number on the programme was a promised address by Mr. C. Willing Hare, of Philadelphia. Unfortunately, Mr. Hare was unable to attend. However, his absence was largely compensated for by the gentleman who "substituted" for him—Mr. Thomas R. Elcock, of Philadelphia. The speaker's theme was "Salesmanship," and his sequential explanations of what a salesman should be and his suggestions as to what a salesman should do, not only to save his reputation but to increase it, were listened to with interested attention. While some of his speech might be justly termed conventional, there still was other suggestion sufficiently out of the beaten path to show that salesmen were made rather than born. Mr. Elcock favored, in respect of the salesman's compensation, that he should be paid a straight salary. In his reasoning he surely made plain some of the evils of the point system, whether or not abetted or eked out by commission gratuities. The opposite thought was well voiced by Mr. James P. Hanlan, of Newark, N. J., and no one may gainsay that he did his best to show that "points" and "commissions" were great prodders to the average salesman; but he did not revert to the fact that the "prodders" often caused bickerings and jealousies which did not altogether work for harmony amongst a selling staff, and these lackings of harmony were certain to be more pronounced in the case of large staffs than of smaller ones. Put the salary at the right figure, meaning a figure which would enable the salesman to live in his community according to the manner befitting a man whose avocation often causes him to come in personal contact with residents of importance and of material influence in a community. Further, set a standard for him to attain—such standard, of course, not to be placed higher than that fairly attainable—letting him know that if certain results were not achieved his period of usefulness was at an end in that particular place. In connection with this debate—and it was an exceptionally interesting one—Dr. Galloway, of the New York University School of Commerce, managed to get in a pretty good advertisement respecting the course of lectures he is preparing at the direction of the National Commercial Gas Association. In this connection, we believe that the Association is powerful enough to carry that plan out of itself and by itself. The way to do it was blazed by the American Gas Light Association, when the latter instituted its Practical Class in gas engineering, which work has been and is being excellently maintained by the American Gas Institute. And here is taken opportunity to reaffirm that which the JOURNAL has often said respecting the Practical Class. It has been of incalculable value to the progress of the gas industry as a whole, and its work has been worth to the engineering end of the profession many times the cost of carrying it on, despite the good, round sum that that cost was. Others who took part in this discussion were, Messrs. C. F. Timm, Jno. Brock, F. H. Pinckney, Jno. C. Butcher and Secretary Osborn—by the-way, Mr. Osborn was certainly an efficient aide to President Pettes. Some routine business completed the session, which was well worth attending. The next annual meeting will be held in April, 1912, at a place to be named later on.—W.

CHANGE IN METHOD.—Mr. Robert P. Brown, President of the Brown Instrument Company, informs us that the Company, which was the first concern to manufacture pyrometers in the United States, the laboratory and offices of which have been located in the premises, 311 Walnut street, Philadelphia, Pa., since 1860, has been obliged to seek roomier quarters, owing to the great increase in its business, which has more than quadrupled the past 5 years. The concern was originally established by Mr. Edward Brown, and bore his name until the recent incorporation of the Brown Instrument Company. As electrical instruments play an important part in the construction of these useful devices, it has been the especial desire of Mr. Brown to be able to superintend the construction of mili-voltmeters for use in the Company's pyrometers, in order to best design the instruments for pyrometric use. With that end in view, Mr. Brown became President of the Keystone Electrical Instrument Company, of Philadelphia. That concern has for several years been manufactuing voltmeters and ammeters, wherefore the shops and laboratory of the Brown Instrument Company are being combined with those of the Keystone Electrical Instrument Company, 9th and Montgomery avenues, Philadelphia. That arrangement places the first-named in the unique position of controlling the construction of mili-voltmeters for its pyrometers, even to the manufacture of the raw materials, such as the magneto, for instance. In addition to the works and offices at 9th and Montgomery, an office will also be for the present maintained at 311 Walnut street. The Company's branch offices in Pittsburgh and Chicago will be continued. At all of its premises—whether factories or offices—the Company will gladly receive the personal visits of journeying gas men.

CURRENT MENTION—

MR. HENRY BOSTWICK, Asst. Secretary, Pacific Coast Gas Association, writing to us under date of the 10th inst., desires us to ask that anyone who knows the location of Mr. C. E. Burrows, a charter member and past-President of the Pacific Coast Gas Association, will forward the same to him, at this address: "Office of the Secretary, Pacific Coast Gas Association, 445 Sutter street, San Francisco." Mr. Burrows in the early nineties was connected with the Walla Walla (Wash.) Gas Company.

MR. ARTHUR R. HILL has resigned the position of Purchasing Agent to the New York and Queens (Long Island City, N. Y.) Electric Light and Power Company, in order to accept the position of Purchasing Agent to the Monterey (Mexice) Railway, Light and Power Company. He takes over the new post the 1st prox. His future field covers the Monterey Water Works and Drainage Company, the Monterey Plumbing and Electrical Supply Company, and the Monterey Gas Company, which latter is in course of construction. Mr. Hill asks us to notify our advertisers that he will give an audience to any of their representatives up to Friday next, and he also asks that full sets of catalogues and discount sheets be forwarded to him at Monterey direct. His specific address is 244 Jackson avenue, Long Island City, N. Y.

IT has been definitely determined that Mr. Victor F. Dewey will relinquish the post of General Superintendent to the Detroit City (Mich.) Gas Company the 1st prox., to take up the work incident to the dual position of Vice-President and General Manager to the Grand Rapids (Mich.) Gas Light Company. He is also a member of its Board of Directors. Mr. Tippy, who preceded Mr. Dewey, will, after September 1st, make his headquarters in Detroit, from whence he will actively control the plants in which his associates and himself have proprietorship. May the best of good luck go along.

THE Consolidated Gas Purification and Chemical Company reports much overtime work is necessary in the shops to keep anywhere close to filling its orders. The latter now in hand will keep Manager Little and his men hustling for the next 60 days. Pretty good outcome, that, for an experimental try, begun less than a twelvemonth ago.

(*Continued from page* 119.)

apparently is away ahead of anything that has heretofore existed, and they want an announcement now made of that fact, because this is perhaps as good an opportunity as we shall have to look at it. I think probably we can get through with all 3 of our papers to-morrow morning. If there is nothing further that anyone has to suggest, a motion to adjourn will be in order.

Thereupon the convention adjourned until May 18, 1911, at 10 o'clock A.M., of the following day, the meeting place to be in the Red Room of the hotel.

SECOND DAY—MORNING SESSION.

The convention having been called to order, the President introduced Mr. J. H. Walker, of Milwaukee, Wis., who read the following paper, entitled

THE ECONOMICAL USE OF GAS FOR INDUSTRIAL COOKING.

The term industrial cooking, in contradistinction to domestic cooking, is well justified, as it pertains entirely to that department of the culinary art that is done for profit; whereas, domestic cooking is a matter of compulsory expense, without direct financial returns.

The introduction of gas for this purpose, therefore, depends entirely on the ability of the gas company, through its new business department, to show prospective customers that they can reduce the cost of preparing food to a level with that of solid fuels, even if at a slightly increased cost, by offering advantages which more than compensate for the difference. This has been for many years the problem which confronted appliance engineers and manufacturers of gas appliances.

The problem of domestic cooking by gas was solved from its first conception with what seems now to have been crude appliances compared to the present day gas range, with its almost perfect arrangement of baking ovens, broilers and boiling burners—a credit to the manufacturer, a comfort to the housekeeper, and a source of popularity and profit to the gas interests. The domestic gas range is used in nearly all private dwellings for a stated number of meals per day, for an almost unvarying number of people per meal, and a limited menu in variety of foods.

Industrial cooking, as exemplified in hotels, restaurants, boarding houses and institutions, is exactly the opposite, requiring a range capacity for a large and uncertain number of guests, waiting to be served at almost any hour in the 24, with a variety of foods only limited by the character of the service demanded. The chef demands a gas appliance designed to economically cook a 60 pound roast, a 20 gallon stock pot, a single egg, or the half pint of gravy required for the finishing touch to a single order—an uncalled-for demand in domestic cookery.

It has been proved that it is impossible to comply with this demand by providing a range with individual burners for each operation from large to small, as this arrangement requires such a varying consumption that the necessary surface makes it impractical to operate, if economy in manipulation is to be realized. The chef requires a highly heated surface, ready at any minute during the cooking hours for the reception of a cooking utensil, from the largest to the smallest, on every square inch of its area. Remembering at all times that this must be accomplished in competition with solid fuels, the problem is one that has involved no inconsiderable amount of thought and labor, a great deal of experimental work, and close study of industrial cooking and cooks. The experience of the Milwaukee Gas Company I believe to be a fair sample of what can be accomplished by intelligent effort in this line of work and co-operation between officers and employees, for increasing the output of gas in profitable lines of business.

It was my pleasure to design, a few years ago, a gas range for industrial cooking that has been installed to the extent of over 250 sections in Milwaukee, representing that number of roasting ovens, and approximately between 1,700 and 1,800 square feet of cooking surface, all of which is in daily use and constitutes a very desirable source of revenue. The only objectionable feature of this range has been the care of the burners for heating the cooking surface, which, when left to the tender mercies of incompetent help, give trouble by overheating, causing the flames to burn with improper combustion and consequent loss of heat, and requiring constant supervision by the gas company. This expense, though small in proportion to the income, stimulated the designing of an improved top and burners for hotel ranges, that we feel justified in stating will give not only more economical results to the consumer, and encourage the installation of additional ranges, but will also eliminate almost entirely the maintenance charges, satisfying consumers, making the range an absolute necessity to chef and manager by its sanitary and economical results. A description of this hotel range, necessarily brief, is deemed proper at this time.

The top is of cast iron, composed of a series of perforated or solid plates, limited in area, thin enough to readily conduct the heat, properly ribbed for strength, preventing warping, with a surface as smooth as a table, allowing utensils to be placed on any portion of the same without danger of rocking or tipping. Each section is provided with two 8-inch openings, with removable lids, to be used where direct action of the flame is required, an occasion that seldom arises, as the rapid radiation and even heat of the entire surface seem to render all the service desired.

A novel arrangement for lighting the burners does away with all pilot lights and consequent troubles, gives visual evidence that the flames are what they should be, and supplies necessary secondary air for combustion. The combustion chamber is insulated with asbestos, preventing radiation to the oven below and also to the front and rear.

A course of firebrick serves as an excellent reflector of heat in a vertical direction, and adds protection to the top of the oven. The course of each flame is through its individual channel to a lateral system of cross flues at the opposite end of the section. These flues provide a direct and indirect draft for the outgoing gases, controlled by a sliding damper.

There are no burners in the combustion chamber or under the cooking surface. The burners are placed vertically on the right or left hand ends of the sections, as the case may be, and the flame is projected into, and almost the entire length of, the combustion chamber, in close proximity to the cooking surface. There being no burners under the top, consequently there are no stopcocks nor upper manifold on the front of the range.

The burners are controlled by a series of knobs connected to the stopcocks with properly arranged levers and connecting bars; a novel arrangement, making control of the consumption absolute, and protecting the cocks from damage caused by contact with pots and pans in the operation of the range, also from the collection of grease and dirt unavoidable in other forms of construction.

The burners, being outside of the body of the range, afford an opportunity to keep the mixture of air and gas cool up to the point of ignition, producing a proper combustion and preventing back firing—a most desirable feature.

The principal trouble with all atmospheric burners, where they are subjected to a continuous reflected heat, is the overheating of the metal, which couses the mixture to become rarefied to such an extent as to destroy the integrity of the flame. This condition causes the burner to emit a yellow, lambent flame, depositing free carbon on the grates and utensils, and in time destroying the burner, by warping and scaling of the metal.

These troubles have been eliminated in the new form of construction, reducing the maintenance charges to a minimum, allowing the operator to maintain an even, steady flame, no matter how long the burner has been in use. Recent observations of a 2-section range in one of our largest hotels developed the fact that there is an actual saving in fuel cost of gas over coal, a result heretofore unattainable.

That this business is worth going after is now an indisputable fact, as we are in Milwaukee averaging a consumption of 25,000 cubic feet per section per month.

Each section represents one 24-inch roasting oven and 990 square inches of active cooking surface, representing at least 25 per cent. greater capacity than a coal range of equal area. The cost of repairs on a coal range, the handling of coal and ashes and the labor of replenishing and keeping fires in order, are expenses which, when carefully considered, relegate the coal range to the scrap heap, even when gas is sold at $1 per 1,000.

The sanitary features of gas cooking with improved appliances are too well known and readily admitted by manager and chef. The range, while it is the all-important appliance in the hotel kitchen, is not the only one which had received our attention. Broilers and steam tables have been improved to such an extent, with increased efficiency of burners, that they rank with the range in utility and economy.

You need have no hesitancy in promoting the all-gas hotel and restaurant kitchen, any more than you would for domestic purposes. Education of managers and chefs to the all-gas outfit has been accomplished in Milwaukee by persistent efforts toward improving the

appliances to reduce the cost of operating, not by reducing the gas rate. The intelligent chef is usually a man of pronounced ideas, often prejudiced in favor of the appliances of his early training in the business, but generally susceptible to conversion to new appliances if he can only be shown. To these traits of character we have catered as much as possible, even when some of our own pet theories have had to be sacrificed; but the results obtained warrant my saying that it has paid to listen to the man behind the range.

There are very few towns so small that cannot support a first-class hotel, restaurant, club house, hospital or other public institutions, each of which caters in a greater or less degree to a large number of people, and offers you the opportunity for the installation of an all-gas kitchen.

The economical features of improved gas appliances for cooking on a large scale should eliminate to a great extent the deep cutting of gas rates that the gas manager faced in the past, and a fair and equitable sliding scale of gas rates is all that is required to boost your income from the sale of gas. You will pardon me for taking so much of your time, but the subject of industrial cooking is so important as an income producer that it is very difficult to get all the good features in a paper even as long as this.

Discussion.

The President—We have heard Mr. Walker's very interesting paper, and I hope most of you have seen the range that he describes, but if not, that you will not leave Milwaukee without seeing it. The paper is now open for discussion.

Mr. Pratt—At least one inportant point made by Mr. Walker which has been important for many years, yet which took many years to discover, is that we have felt as gas men that we knew more about the operation of a range, and how the heating should be applied, than the chef, who, as Mr. Walker has said, stands behind the range, We felt for a great many years that we could educate the chef to the use of gas by the use of burners placed here and there, directly under the pot or kettle to be heated, trying to explain or compel him to believe that concentrated heat was the kind he wanted, and it has really been during only the last 4 or 5 years that we have at last admitted the chef knew what he wanted, and, in the newer range construction we would permit him, after heating his pots and kettles, to give them a slide across the stove and so make way for the next article to be cooked. We have at last come to the kind of range we need. Now, Mr. Walker it seems describes this range accurately and nicely. I was at the Plankinton House this morning where one of these ranges is in use—this is not intended for advertising purposes, but his paper is a practical one and should be practically applied—and it seems to me the range Mr. Walker describes here seems to fill a long felt want. For instance, this burner is such that it is practically free from any choking up with grease and dirt as usual, things we have had to contend with before, and an important feature of a range in a house or hotel that has become very much neglected. I noticed, in the operation of this range this morning, two of the burners going, extending across a half section of the range, and on the other half section, some 18 inches distant, were two large caldrons of soup, which were boiling from the heat, I presume, given out from the firebrick that had been previously generated when the burners on the other side were going and were then in use. Is that it, Mr. Walker?

Mr. Walker—Yes, sir.

Mr. Eastman—I would like to ask Mr. Walker if it is intended to put that range on the market for domestic cooking. There are a great many large houses in all our cities that would require a range not quite as large as the hotel type, but larger than an ordinary gas range. In Manitowoc there are probably a dozen homes that would welcome an all-gas range if they could be given a gas range similar to this one. That is, their objection is, when they have a party, or anything like it, they, not having sufficient cooking surface, cannot keep things warm. So being in trouble all the time, they refuse to give up their coal range, wherefore we do not get an all-gas kitchen.

Mr. Walker—Replying to Mr. Eastman, I will be very glad to put down the order now for just that class of a range for domestic booking, if his people want it. Now it has to come to that class of a range for domestic cooking before we get through. I started on the hotel range and we are never going to let up. If you have got twelve places, why, just put them right down in the book and I will send them along.

The President—Certainly, a very full and complete answer. [Laughter.]

Mr. Walker—Well, it is a little terse; but still, at the same time—

Mr. Cowdery—No doubt, Mr. Walker is ready for business this morning. [Laughter.]

Mr. Walker—I am right on deck, if anybody should ask you. I believe we have started in Milwaukee a new thing or a new era in the application of gas, not only for cooking purposes in the hotels and restaurants and public institutions, but I think we have got a burner, representing perhaps not an entirely new idea, but one that is much more practical than the burners to which we have been used for years back, for which we are buying and paying good money every day, and trying to take care of after we sell them, much to the disgust of a great many people. I believe the time is coming when the character of the burners on the domestic range will be entirely changed from what it is to-day, and I do blame the manufacturers for running along in the old lines and doing nothing new for the community, yet expecting their good money.

Mr. Cowdery—I think there is no doubt, gentlemen, but that this range comes nearer to supplying the requirements for hotel, restaurant and other large uses than anything else ever designed in the shape of a gas range. Our experience in Chicago has demonstrated this. We have been making strenuous efforts to introduce the gas range there for several years, and at times have thought we were making very good success. Gas is very generally used in our hotels and restaurants, but it is perhaps proper to say not with the greatest degree of satisfaction. In attempting to put in gas ranges we have found we are up against this obstacle all the time: The chef wanted a smooth top and he wanted it hot all the time; he was not willing that the burner should be put out during periods when the heat was not needed, bnt he wanted a hot top all day long, from the time he came in the morning until going away at night, and the only way you could get him to use the range was to keep the fire going, with the result that the hotels have invariably put in coal ranges. The new hotels built in Chicago in the last 3 or 4 years have all put in coal ranges. They then put gas burners in the ranges, thus converting into gas ranges of the style desired. If the user can have the top plate hot all day long he does not care about the cost of the gas and the range will be satisfactory. This range seems to fill the requirement and at the same time gives the greatest degree of economy.

Mr. Walker—As to the matter of economy in the use of that gas range, gentlemen, there are 7 burners for the cooking surface on each section. The 7 burners will consume only 120 feet per hour, or averaging less than 18 feet per hour per burner. The common burner on a domesiic range, or what is called the Giant, of the largest type, will burn about 15 feet, but you cannot do a thing on its burner except to boil a kettle. On this burner, burning 18 feet or so, you have a flame 18 inches long, and you can boil on any portion of that range to the extent of the section of the range. There is where I claim we have an economy. It will be a hard matter to put this into domestic cooking, for the simple reason that the size of the flame and its looks will scare any housewife out of her senses. Seeing a range burning with that long flame, all that she sees is the bill at the end of the 30 days, and she will cut it down. When she does so she destroys its efficiency; but the time will come before we get through with this matter that we will apply this to a domestic range and have it what it ought to be, to go into a private house and still retain the economical features of cooking by gas.

Mr. Eastman—Does Mr. Walker, since he has had the ranges in use here in Milwaukee, find the slotted top preferable to the solid top? I was told yesterday that the tops are made either in slotted or solid form.

Mr. Walker—As to the difference between solid top and slotted, it is a matter of doubt in my own mind as to which is the better, but my observation to the present time leads me to prefer the slotted top or perforated top, for the reason that, if the burner is not burning exactly right at the time it is turned on, your slotted top gives you a little better ventilation. If your chimney is bad and it is cold in the morning, with the drafts not good, you have a little ventilation there through the top which will help you. Those who have seen that range will notice, when that draft was not turned on fully, you had a little flame coming through those slots. The reason is a certain amount of unburned gas is going through there, which, on coming in contact with the air through these slots, is ignited giving you the benefit that might result therefrom. If the chimney has a good, strong draft, and that can be controlled by a damper, I personally prefer a solid top, having none of the products of combustion coming into the room; but we have found so many places in Milwaukee (in every place else the like is undoubtedly true) where the chimneys

being old and stopped up with the soot and ashes of former days, that we have to make some provision for that condition. The idea that a flame coming through these openings is giving you more heat is a fallacy. You will get much better benefit on your kettle by taking heat through an intervening substance—that is, the top of the range—than by having the flame come directly in contact with the pot or pan itself. I may be wrong, but as far as I have gone that is what I think at the present time. The condition that arises and has arisen with us right here in Milwaukee is the fact of bad chimneys and poor drafts, with nothing to draw the outgoing gases away from your burner. The quicker you relieve a burner of the resultant products of combustion the better flame and the higher the temperature you are going to get from it. It is from the simple fact that nothing will live in carbonic acid, you cannot support either animal or plant life with it; neither will flame. It is the old, little bit of theory propounded to me in school years ago, in the chemistry class, of lighting a candle, holding a glass over it and seeing it go out. Now, the same thing occurs with a gas flame, and when you can relieve a burner of its products of combustion rapidly you are going to get a very much higher result. Hence, I feel that the perforated top should, to a certain extent, be used. If we can find a chimney having a perfectly good draft, that you could rely on it at all times, I would say use the closed top. I would like to get some new ideas on that range; nobody seems to give me any.

The President—They are getting them from you. Well, gentlemen, we have listened to a paper and a discussion that should have a very important effect upon our output the next year or so. I shall be much mistaken if it does not.

(To be Continued.)

[Continued from Page 101.]

PROCEEDINGS, FOURTH ANNUAL MEETING, CANADIAN GAS ASSOCIATION.

Held in the City Hall, Quebec, June 15, 16 and 17.

First Day—Morning Session.

In the absence of President Hewitt, his address was read by the Acting President as follows:

PRESIDENT'S ADDRESS.

I am glad to greet so many members of the Association at this convention. We are met together under the most favorable auspices, and, at the very beginning of our proceedings, I desire to convey to the Quebec Light, Heat and Power Company, through its Managing Director, Mr. C. A. E. Carr, the hearty thanks of the Association for the kind invitation to meet in Quebec.

It is just 30 years since I first stepped on Canadian soil, in this city of Quebec, and it is indeed a delight to me to-day to be presiding at so important a meeting as that of the Candian Gas Association in this historic city. Let us endeavor to make this convention one of the bright spots in our experience. I trust there will be a thoroughly fraternal spirit, a spirit of helpfulness and a desire on the part of each member to augment the efforts of the local Company, so that not the least shadow of disappointment can creep into the mind of anyone.

There are many important matters to be brought to our attention, and I am sure that much advantage will result from our conference. The necessity for certain changes in the government regulations under the Gas Inspection Act is apparent, and your Executive Committee had hoped to be in a position to announce at this convention that the representations which had been made to the Department of Inland Revenue had resulted in the adoption of new regulations; however, the gas and electric branch of the Inland Revenue Department does not seem to be of the same serious concern to the government as the interests of the brewers, distillers and tobacco factors, and matters which vitally affect not only the producing companies, but gas and electric consumers as well, have been neglected.

The departmental regulations relating to gas standards and inspection are practically what they were 30 years ago, notwithstanding the absolutely transformed conditions of the industry itself. Surely industries, in which upwards of $200,000,000 of capital is invested, and supplying commodities like gas and electricity, which bulk so largely among the modorn necessities, are as worthy of consideration in the matter of progressive legislation as are the interests of brewers, distillers and tobacco factors, whose combined capital investment is less than $50,000,000.

Would the government not be warranted in appointing a commissioner of gas and electricity, authorized to revise the Gas Inspection Act, bringing it into reasonable conformity with the present English act? Such a commissioner, equipped as he would be with modern testing appliances and methods, would give to both the companies and the public adequate and proper protection. On the one hand the companies would be compelled to comply with great strictness to such regulations as might be in force, and the public would be assured that they were receiving from the companies at least all that they were entitled to.

The competition between gas and electricity for lighting grows increasingly keen, and, as long as gas companies are required to spend large sums of money in useless enrichment, so long will they be handicapped in meeting the competition of their rivals. It has been demonstrated in England and in Germany that gas having an illuminating power of from 12 to 14 candles, as tested by the Metropolitan No. 2 burner, can be produced most economically, and will enable gas companies to place at the disposal of their consumers a perfectly satisfactory gas, suitable for all requirements at a low cost. Even in the United States, while no definite action has been taken by the American Gas Institute, there are evidences that, when a final conclusion is come to, the practice will not vary much from the lines which have been laid down by the English and German gas engineers.

I would suggest that following the paper, which I understand is to be presented by Mr. Philpotts, this Association consider carefully the question of preparing a resolution, urging upon the minister of internal revenue the wisdom of at once amending the Gas Inspection Act, so that gas companies may supply gas having a calorific value of say 450 to 500 B. T. U.'s net, and that, unless the candle power standard is to be abandoned altogether, provision be made that the illuminating standard shall be the 14 candles, as tested by the Metropolitan No. 2 burner.

As the members are all aware, the Gas Light and Coke Company, of London, England, are now authorized to supply gas having an illuminating value of 14 candles as tested by the Metropolitan No. 2 burner, and a minimum calorific value of 450 B. T. U.'s per cubic feet. they are not liable for any penalty unless the B. T. U.'s drop below 426 per cubic foot. As I have already stated, Mr. Philpotts is to follow with a paper, which will deal with this particular subject more directly.

I suppose it is too much to hope that the time will ever come when public corporations, no matter how conscientiously they may strive to perfect their service, will be able to secure the absolute commendation and confidence of the community in which they operate, but that is no reason why a public service corporation should neglect any opportunity to demonstrate that public demand and public convenience are their first considerations; for, after all in the long run, public demands and public convenience must be satisfied. Realizing that extensive privileges have been granted to them by legislative enactments, gas companies and public service corporations generally must realize their obligation to render satisfactory service to their constituents, and that the public must share liberally in the advantages, financially and otherwise, which result from improved methods of plant operation, new inventions, general economies and increased business. The company that bases its rates on "what the traffic will stand" is not likely to be a "winner" in these days.

Until comparatively recent times the business of a gas company was to supply gas to such customers as desired to use it. There was no effort to secure new business, and no particular care taken to hold it when it was secured. Customers bought such appliances as were likely to meet their needs, provided they could be bought cheaply. Nowadays most gas companies are experimenting with a view to ascertaining what are the best appliances for the various purposes for which gas can be used. They are securing these appliances and bringing them to the notice of their customers, who are being urged to abandon wasteful appliances, and substitute those from which a greater percentage of efficiency can be obtained. In other words, instead of merely selling gas, gas companies are now furnishing efficient service in lighting, heating, industrial work, etc., and are making it possible for their customers to secure at the lowest possible cost the very best type of appliances for their particular needs.

Then take the question of dealing with complaints. Instead of disgruntled customers being arbitrarily dealt with, the endeavor is to investigate every complaint, no matter how trifling, to try and ascertain the cause of increased consumption, and to satisfy the customer

thoroughly that he is not being called upon to pay 1 cent more than the value of the service which he has received from the company.

Fitting reference should be made to the loss which we have sustained in the death of our beloved associate, Charles Forbes, of Ottawa. Mr. Forbes was a charter member of this Association, and was held in high esteem by all who knew him. We missed him from our meeting in Hamilton last year, and were saddened by the thought of his severe illness. We now mourn his death.

I am authorized by the Board of Directors of the Consumers Gas Company to extend an invitation to the Association to hold its next meeting in the city of Toronto. I trust that the Association will view this invitation favorably, and that it will be unanimously decided that the 1912 convention shall be held in "The Queen City."

The Chairman—Referring back to the Executive Committe report, in the matter of B.T.U. instead of a candle power standard. At the suggestion of Mr. Keillor the Executive Committee would like an expression of opinion from the members as to what their views are on this question. I would like to hear from Mr. Cunningham as to what the practice is in the United States.

Mr. Cunningham—Respecting the substitution of a thermal standard for an illuminating one, in one case, the State of Wisconsin, the trial thereof in its second or third year has been very satisfactory. The proportion of gas used for illuminating purposes, strange to say, in the West largely exceeds that in the East. So far as the State of Wisconsin is concerned, the practice in that respect is satisfactory, both to the State and to the people. In New York 1 know that the Commission for our First District, the larger one, has had the common sense and good grace to appoint one of as clever gas engineers as we have in New York to supervise the gas end of their duties. Under such direction and regulation I know the gas men of New York State need not fear the ultimate result. We are to be governed there by Commission. I can freely say that the relations between the public and the State of New York and their lighting companies have never before been on as solid a basis. They are on a more satisfactory basis now than ever. I know the State is now carrying on a series of independent determinations with the point in view of the possible substitution of a thermal unit value instead of a candle power value.

Mr. Wilkinson—Referring to the report made by Messrs. Hewitt and Keillor last year, showing the relative calorific value of the gas to the candle power, I think it was a very complete statement. They went into it very carefully, showing that the calorific value of the gas did not depreciate with the lowering of the illuminating quality. When we consider calorific value we are considering it from our own standpoint as manufacturers, but it seems to me we are also giving the benefit to the consumer. The consumer will certainly benefit by any reduction in the cost of gas. I strongly advocate the adoption of the calorific standard.

The Chairman called for the

REPORT OF THE NOMINATING COMMITTEE,

which was as follows:

To the Canadian Gas Association; Your Committee desires to recommend the following as candidates for the respective positions to be filled:

President—Arthur Hewitt, Toronto.
First Vice-President—E. J. Philip, Berlin.
Second Vice-President—A. W. Moore, Woodstock.
Secretary-Treasurer—John Keillor, Hamilton.
Executive Committee—J. S. Norris, R. A. Wallace, A. A. Dion, J. M. H. Young and P. S. Coates. SAMUEL CARTER, Chairman.

Mr. Carter further said: The Committee thought, under the circumstances, that Mr. Hewitt should serve next year. We recommend that the meeting next year be held in Toronto. Very little change has been made in the officers for that reason. As to the Secretary, we have a great one, and it is a wise thing, if you want your Association to flourish, to keep a good one. I have great pleasure in moving the names for your affirmative action—President, Vice-President, Secretary and Executive. I think it would be well to leave your place of meeting open and vote upon it afterwards.

The motion and suggestion were indorsed.

[The Association then adjourned, to visit the "Empress of Britain," per invitation of C. P. Steamship Company. Subsequently an observation trip was made to points of interest in and around Quebec, and in the evening the Quebec Band entertained the members and guests, through a rendering of musical selections well played. All of this was noted in our special dispatches for June 19 and 26.]

(To be Continued)

Electrolytic Corrosion of Reinforced Concrete.

Engineering notes that the account of experiments presented by C. E. Magnusson and G. H. Smith to the meeting of the American Institute of Electrical Engineers, which assembled at Chicage in the last days of June, does not advance the practical aspect of the problem much, The experimenters took cylindrical blocks of concrete, 9 inches high and 6 inches in diameter, embedded a ¾-inch steel bar, to one end of which a copper wire was soldered, along the axis of the block, and left 2½ inches of concrete between the lower end of the bar and the bottom of the block, which was kept in a moist condition for at least 30 days before the current of about 100 volts was applied. The blocks were placed in fresh water or salt water. All the blocks cracked sooner or later, and there was little doubt that the cracking was due to the increase in the volume of the iron, arising from its oxidation or its conversion into a salt. This electrolytic oxidation was the primary cause of the deterioration of the concrete: it was not that the water could gain access to iron through some fissures already existing or developing for some reason. The dry concrete was an insulator. It became a conductor when its pores were filled with water or some salt solution, and the conductivity was electrolytic. Magnusson and Smith placed cubical blocks of concrete (free of iron) between electrodes in water and salt solutions; the current of 0.07 ampere and less did not deteriorate the mechanical properties of the concrete noticeably. Thus it must have been the iron in the ferro concrete which caused the trouble. The oxidation of the iron might be prevented in the laboratory by making the iron the cathode; but that is practically out of the question. The electrolyte might be kept off by filling the pores of the concrete with some non-conducting material; the experimenters tried Sylvester's process (soap and alum) with little success; other cement-proofing materials might answer, but they would have to be applied with very great care. The authors also attempted to provide the iron, before embedding it in the concrete, with some protective coating. Zinc proved useless. Aluminum paint, prepared either with so-called banana oil (amyl acetate) or with some varnish, was tried for this purpose; the attempts were not more than temporarily successful, and it resulted that the value of the coating depended essentially upon the durability of the varnish. But it was also found that the application of insulating varnishes to the iron of ferro-concrete greatly reduced the maximum shearing strength of the concrete. Under these circumstances it is interesting to note that concrete containing an aluminum wire, instead of an iron bar, did not corrode when the blocks were immersed in water or salt solution. A current was observed to flow when the circuit was closed, but it dropped to 0.001 ampere in the course of 10 minutes or less, and the concrete remained unchanged. This point might further be investigated. The experimenters suggest trying iron electrolytically coated with aluminum. What they say about alternating currents (the tests so far mentioned were made with direct currents) is in agreement with previous observations; alternating currents will not attack ferro-concrete, provided the positive and negative wave forms be equal and the heating not excessive.

Publications.

[All Publications, Catalogues, etc., mentioned below, are kept in our office for the convenience of our patrons.]

Ventilating Apparatus.—A rather complete descriptive catalogue on ventilating apparatus (No. 180) has been issued by the B. F. Sturtevant Co. Those having occasion to make calculations of air displacement, will find the tables of easy reference.

Carburetted Water Gas.—Catalogue *de luxe* can be rightly applied to the 1911 catalogue of the United Gas Improvement Company. The green sheepskin covers inclose a most comprehensive treatise on the manufacture of carburetted water gas in their apparatus. The many illustrations and the technical data should make this work a most necessary addition to every gas engineer's library, and the numerous demands for copies which will undoubtedly be received will testify to the progressive policy which made it possible.

The Lindsay Light.—The monthly bulletin of the Lindsay Light Company now appears in its second number, and is of a like order with the attractive advertising matter of the Company which made it notable as an advertiser. It is well arranged and fully illustrated,

and contains much interesting gossip, as well as announcements of new appliances. It will be sent gratis upon application.

Graphite.—Another bulletin now in its 14th volume. It contains much interesting matter concerning the products of the Joseph Dixon Crucible Company, including descriptive articles of large and important structures where graphite has been used.

More Light.—A pamphlet for use of the Gas Lighting Solicitors of the Gas and Electric Company, of Baltimore, Md. It covers the various appliances on sale, with prices, maintenance rates, etc. It has been gotten out in "Baltimore" style.

Natural Gas Heating.—One of the first of the 1912 stove catalogues showing the Keystone heating line of the Reincke, Wilson Company.

Compensation by Lump Sum.

The English courts, in a case that has attracted much attention respecting damages accepted on account of personal injuries, in so far as such acceptance might be short of the mark, recently ruled:

"Where a workman seems to be permanently incapacitated by an accidental injury, it is often the employers' best policy to cut their loss after 6 months by offering to pay a lump sum. It will, however, be remembered that the Act of 1906 does not contemplate such modes of compensation. It is conceivable that a workman's half-pay during incapacity may be compensation for his injury, but rarely is the lump sum offered large enough to compensate the workman. At Weymouth County Court a firm of employers had paid weekly payments of $4.33 a week for severe injuries which incapacitated a quarryman and threatened to be lasting, if not permanent. This suggested a voluntary agreement. The Registrar refused to record it, on the ground that the sum ($575) was not adequate. Medical evidence was to the effect that the workman might yet be capable of suitable light work. This opinion was doubtful, and the County Court Judge upheld the Registrar's refusal to record the agreement.

"The Workmen's Compensation Act does not release the employers unless the lump sum is adequate to secure the workman sufficient in a little business to be equal to half-pay during incapacity. It was argued that the quarryman, though not a business man had a smart wife who might succeed in a business which could be bought for $575.

"The Judge refused the employers' application because the injured man would thus be exposed to the risk of the wife's absolute failure to carry on a profitable business, and to the risk of starvation by relinquishing the claim to compensation. The employers could not, in the circumstances, be released by a voluntary agreement to redeem, and the weekly payment of half-pay ($4.33) was ordered to be continued. The lump sum is a danger to the workman, who is tempted to release the employers by payment to himself of a sum which an unbusinesslike man or woman may regard as wealth, but which the Judge perceives is no adequate compensation for life-long incapacity."

BOOK REVIEWS.

British Gas Companies Accounts.—The *Gas World's* presentation and dissection of gas companies accounts for the year 1910 are now available for distribution. This year's recountings detail the results in 54 undertakings, or one more than that given for 1909. The analysis of municipal accounts lists 73 companies. The data contained in these publications should be of great value to the operating engineer for reference and comparisons with his own works, and to the manager as indicating the extent and scope of the data which will be required from the public service commissions of the future.

The Manufacture of Sulphate of Ammonia.—Handbook by Mr. Gascoigne T. Calvert, 5½ by 8½ inches; 150 pages; fully illustrated; published by John Allan & Co., for sale by the AMERICAN GAS LIGHT JOURNAL. Price, $2.50. The subject has been handled in comprehensive but concise manner and is prepared especially for engineers. The chemical reactions, the plant required and its operation are described in detail, and the illustrations show the results of careful, excellent picturing and painstaking attention to detail.

Recent Patent Issues.

Prepared for the AMERICAN GAS LIGHT JOURNAL by ROYAL E. BURNHAM, solicitor of patents and counselor in patent causes, 833 Bond Building, Washington, D. C., from whom illustrations and specifications of any patent mentioned below may be obtained for 10 cents.

999,349. Vertical Retort Gas Apparatus. J. H. Taussig, Philadelphia, Pa.

999,698. Gas Producer. W. B. Chapman, New York City, assignor to W. B. Hopping, trustee, same place.

999,615. Burner. M. E. B. Williams, Westernport, Md.

990,717. Gas Oven. F. S. Hartwell, Sioux City, Ia.

999,731. Blow Valve for Gas Wells. A. N. Alten and O. David, Avon, O.

999,784. Gas Producer. J. A. Herrick, New York City.

999,807. Gas Producer. H. I. Lea, Pittsburgh, Pa., assignor, by mesne assignments, the Colonial Trust Company, trustee, same place.

Items of Interest
FROM VARIOUS LOCALITIES.

MR. W. A. ALDRICH, writing to us under date of the 8th inst., says: To the Editors, AMERICAN GAS LIGHT JOURNAL—In your issue for July 31st, first paragraph, it is stated that a 1¼-inch pipe is laid on each side of the street. This should read 1¼-inch pipe. While your readers know such a size is not made, nevertheless I wish you would be good enough to make the correction.

MR. CHARLES E. RICHARDSON has been chosen to represent the Thomas-Richardson-Stevenson Company, of Philadelphia, Pa., in the South. His headquarters will be in Atlanta, Ga. Their Eastern or New England representative will be Mr. W. Keating Johnson, whose offices will be in Boston. The firm named manufactures the Fortune brand of gas cooking and heating devices.

THAT peripatetic vendor of varying sorts of gas apparatus, Mr. Burdette Loomis, chiefly of Hartford, Conn., bobbed-up in Savannah, Ga., some days ago. Of course, he put up at the De Soto Hotel. He managed to get the ears of a reporter (that is, he talked and the reporter listened), into which lobes were directed various words conveying to the listener that which Mr. Loomis proposed to do in respect of establishing in Savannah, a central station plant of the Loomis type, to manufacture and distribute Loomis heating or fuel gas. He referred the scribe to a working example of the kind, now in duty at Waycross, Ga., said plant having a per diem capacity of 740-horse power—whatever that may be. He did not, however, mention anything about the Loomis try at the fuel gas business in Hartford, Conn., or Butler, N. J. We, however, will mention those places, just for the publicity of the thing; nor will any charge be made for such publicity.

MESSRS. W. J. WALKER and T. E. Salter, hitherto named in the JOURNAL as the ones mainly interested in the organization of the Oaktown (Ind.) Gas Company, assert that it is their intention to construct forthwith a plant at that point.

GAS was turned into the mains of the municipal gas plant, Newton, Ia., the afternoon of the 4th inst.

MESSRS. H. M. BYLLESBY & COMPANY, of Chicago, announce a confirmation of the reported purchase of the Sioux Falls (S. D.) Light and Power Company. This Company owns and operates a water power generating plant on the Big Sioux river, reinforced by a modern steam auxiliary station, and serves the greater part of Sioux Falls with current for lighting, transportation and power. Formal possession will be taken forthwith, under the direction of Mr. N. C. Draper, formerly of Zanesville, O., as Manager. Improvements to and extensions of the property are projected.

DURING the past winter the E. E. Witherby Company, as engineers, laid out the high pressure line from the Portland (Me.) Company's works, together with the proposed distribution system of the Municipal Light and Power Company, of South Portland. Construction work on the distribution system in South Portland, was commenced about the middle of May, as soon as the absence of frost would permit, and gas was turned on to the city June 12th last. As of July 29th they had 315 meters in daily use, and had actually sold and in use 291 gas ranges. In addition, 40-odd arc lamps were on the lines, and the usual percentage of water heaters, etc. The system is a high pressure one, every meter being fitted with a governor.

ANOTHER new company in the State of Maine is that at Westbrook, the engineering of which in all details was carried out by the Witherby Company, and its construction as well. The Westbrook distribution system was started in duty last December. With the frost out of the ground in 1911, rush work was the order until May 4th, when gas was turned into the lines. While it is true that Westbrook is the abiding place of many staid New England residents, to many of whom a gas range was a novel contraption, it is now, nevertheless, a certain fact that 357 meters are at work, and that 342 of them are supplying gas to ranges and other kitchen accessories. The main system will be virtually completed by October 1st, at which time there is no doubt 600 meters will be clicking, all of which looks that the Witherby combination does not delay when work is in hand.

MR. VAN E. BRITTON, the worthy son of a worthier father, in the course of a personal letter to one of the staff, dated San Francisco, the 9th inst., had so much of an interesting nature generally to say, that I'm sure he will forgive us for printing the following therefrom: "Business with me in the engineering line has been very good this year. I have just completed a generating plant and distribution system for the Northern California Power Company, at Willows, and a number of other smaller engineering jobs have kept me more than busy. Prospects for new work along these lines are very good, and I shall take pleasure in advising you of them as soon as they have reached a definite head. Mr. Paul C. Funk, formerly Manager of the Nevada Gas Company, Tonopah, Nev, has been associated with me since April 1st as Superintendent of Construction. I have just received contracts for the erection of gasholders at Chico and Petaluma of 100,000 and 150,000 cubic feet respectively. This work will be done by the Davis & Farnum Manufacturing Company, of Waltham, Mass. I have also secured for the same builders a contract for the erection of a 200,000 cubic feet capacity gasholder for the Honolulu (H.I.) Gas Company. By-the-way, Mr. H. L. Strange, the competent Manager of the Honolulu Company, who spent a month in 'Frisco recently, contemplates many betterments there. He has been operating a Jones' oil gas set there with remarkable results since 1908. While here he gave me a contract for the erection of two 20-foot, round, wooden purifying boxes, to be placed this fall. These purifiers, which are to be of the Jones' type, are peculiarly well adapted for the Honolulu section, where the atmospheric conditions are most severe on metals of all types, owing to the fact that the wind, which always blows from the sea, carries with it a salty moisture which nothing will retard."

AT the annual meeting of the shareholders in the Woburn (Mass.) Gas Light Company a notable change occurred in the active management of the Company when Mr. John W. Johnson, of Woburn, was elected Clerk and Treasurer, to succeed Mr. Richard J. Monks, who has been the controller of and active factor in its affairs for a number of years. The other members of the Board are: Frank H. Monks, John W. Johnson, George H. Monks and Livingston Cushing.

ADVICES from Amherst, Mass., dated the 14th inst., are to the effect that Messrs. Cabot, Thompson & Eustis, of Boston, Mass., having succeeded in acquiring a majority of the shareholdings in the Amherst Gas Company, offer now to take over all the minority stock at the price paid for control.

MESSRS. C. N. WILLIAMS, Albert S. Brooks, C. W. Collins, B. H. Widdicombe and John M. Cotts are named as the incorporators of the Trinidad Electric Transmission Railway and Gas Company, who will take over for operation the Colorado Railway, Light and Power Company, nominally purchased by one C. X. Chappellee, of New York, at a sale on the 2d inst., which sale was authorized by the Federal Court for the district.

MR. JOHN H. CUNNINGHAM, General Manager of the Winchester (Va.) Gas and Electric Light Company, will be the Republican candidate for State Comptroller of Maryland in the election for State officers there this fall Mr. Cunningham's home is in Westminster, Md., in which place he performs the duties incident to the position of Cashier of the Westminster Farmers' and Mechanics' National Bank.

THE formal act of transferring the natural gas franchise for Kansas City- Mo., nominally held by Messrs. McGowan, Small & Morgan, and their lease of the physical assets of the Kansas City-Missouri Gas Company, to the Kansas City Gas Company, was made the 10th inst. Mr. E. L. Brundett will be continued as President.

THE Home Gas Company, of Salisbury, Md., filed a petition with the Public Service Commission of Maryland, under which instrument it seeks to issue additional stock in the sum of $40,000, the proceeds to be used in extending its distributing mains to the settlement of Delmar and to improve its facilities in Salisbury. The petitioners declare that they have secured the right of way over the Middle Neck road from the County Commissioners. The present capital of the concern is $80,000.

MR. R. P. ALEXHIRE, of Huntington, Va., acting as Trustee for the bondholders, caused the properties of the Gallipolis (O.) Gas Light and Coke Company—the concern also controls the electric lighting supply of that city—to be placed in the hands of a receiver. The basis of the claim was default in interest payment on $30,000 bonds, issued when the local electric lighting concern was taken over.

AT the annual meeting of the Consolidated Gas Company, of Pittsburgh, Pa., which has for some years been a subsidiary member of the Philadelphia Company, the retiring Board of Directors was returned to office. The Directors later on perfected the following executive organization: President, J. H. Reed; Secretary, W. B. Carson; Treasurer, C. J. Braum, Jr.

THE City Council, of South Amboy, N. J., recently decided not to grant any further permits to lay pipes in that city to the Pubiic Service Gas Company, or until such time as that corporation agrees to furnish gas at the rate of $1 per 1,000. The ruling rate is $1.60.

THE Jenkintown (Pa.) Company is piping the outlying territory known as Hatboro.

THE Public Service Commission of Maryland will, on the 13th prox., take testimony in respect of the complaint of the Mayor and Common Council of Mount Ranier and the residents thereof, against the Hyattsville (Md.) Gas and Electric Company. The latter is charging $1.50 per 1,000, and the complainants urge that a sufficiently fair rate to all concerned would be $1. It surely would on residential account.

"T. B. B.," writing under date of the 16th inst., sends us the following aocount of the annual meeting of the stockholders of the New Bedford (Mass.) Gas and Edison Light Company. A feature was the adoption of a resolution putting over the holding of the annual meetings to the third instead of the first Monday of August. The matter of the annual contribution to the fund of St. Luke's Hospital was left to the Board of Directors, and it was also voted to expend $150 for the purchase of shade trees. The reports showed that the gas output now averages 1¼ millions cubic feet daily, and that the percentage gain output for the twelvemonth was 25. The Superintendent's report, among other interesting items, chornicled the placing of 13 miles of additional gas mains, 80 per cent. of which pipes were put down in the district known as Fairhaven. The supply of gas in that section would probably become effective by October 20th. That the Fairhaveners wanted a gas supply would seem thoroughly well authenticated by the number who signed the applications therefor. For instance, Spring street has 118 separate dwellings, etc., fronting it, and the occupants of 102 signed up. The Directors elected were: W. H. Pitman, Charles R. Price, George R. Stetson, David W. Beaman, H. M. Knowles, F. H. Gifford, Parkman M. Lund, Lot B. Bates, John S. Perry, Frederic Taber and Oliver Prescott. Of course, Mr. C. R. Price was unanimously re-elected Clerk and Treasurer. It is noteworthy, too, in connection with these transactions, that Mr. George R. Stetson, President of the corporation, is the only Director living who was on the Board at the time of his first election thereto—1881. The interest taken over this meeting would seem shown when it is reported that 6,259 shares were represented, as against 4,487 in 1910.

A CORRESPONDENT in Hartford, Conn., writing under date of the 10th inst., says: "Dear JOURNAL.—Inclosed find a new one in the shape of the Southington *Gas News*, the proprietors of the sheet being the local gas suppliers. There is no paper regularly published in either Southington or Cheshire, so the Company decided to get out a monthly. I forward you copy thereof, which 'looks good to me.' Its Editor is the go-ahead, hustling new business man of the Meriden (Conn.) Gas Light Company—all Mr. Learned's boys are up-to-date—Irving D. Fowler. Say; isn't this going some?"

THE Hartford City (Conn.) Gas Light Company has rented the store formerly occupied by the Hartford Electric Company as an appliance shop. The new occupiers are fitting the place up in great style, and when they have finished the Company will be in position to attract the residents to a place right in the business retail center filled with samples of handsome gas goods for adorning the home or making the kitchen more tenantable.

DURING the past year—that is, to December 31, 1910—the output by the Brooklyn Union Gas Company, New York, reached within a small fraction the enormous total of 12,000 millions cubic feet. The daily capacity of its plants is 56,000,000 cubic feet.

The Market for Gas Securities.

Well, the chicken-trust trustees having been put away for 3 months or so, one disturbing factor has been removed from activity in the circles or rings of Wall street. Of course, we still have with us the renaissance of steel, the regurgitation (not mitral) caused by tariff troubles, to disturb values in Consolidated gas. This security has as much relation to any of these things as vice has to virtue; nevertheless values are down. Consolidated sold off to 136, ex-dividend to be sure, and there it was this morning, 136 to 136¼. Vanish, the point; meanwhile it would look good business to take on as many of the shares as a 20-point margin will carry. That margin will be ample.

The out-of-town gas share trading is very dull, but there has been no marked slump in quoted values. That sterling corporation (the American Gas Company) has declared a dividend of 1¾ per cent., payable the 1st prox.

Gas Stocks.

Quotations by George W. Close, Broker and Dealer in Gas Stocks.

115 BROADWAY, NEW YORK CITY.

AUGUST 21.

☞ All communications will receive particular attention.

☞ The following quotations are based on the par value of $100 per share:

N. Y. City Companies.	*Capital.*	*Par.*	*Bid.*	*Asked*
Consolidated Gas Co.	$73,177,000	100	136	136¼
Central Union Gas Co.—				
1st 5's, due 1913, J. & J.	3,000,000	1,000	103	105
Equitable Gas Light Co.—				
Con. 5's, due 1932, M. & S.	1,000,000	1,000	115	118
Mutual Gas Co.	3,500,000	100	155	165
New Amsterdam Gas Co.—				
1st Con. 5's, due 1948, J. & J.	11,000,000	1,000	100	101½
New York & Richmond Gas				
Co (Staten Island)	1,500,000	100	35	50
1st Mtg. Gold Bds. 5 p. ct.	1,000,000	—	98½	100½
New York and East River—				
1st 5's, due 1944, J. & J.	3,500,000	1,000	103	105
Con. 5's, due 1945, J. & J.	1,500,000	—	95	100
Northern Union—				
1st 5's, due 1927, J. & J.	1,250,000	1,000	94	100
Standard	5,000,000	100	50	70
Preferred	5,000,000	100	70	100
1st Mtg. 5's, due 1930, M. & N.	1,500,000	1,000	103	105
The Brooklyn Union	15,000,000	1,000	136	140
1st Con. 5's, due 1948, M. & N.	15,000,000	—	106¾	107
Yonkers	299,650	500	130	—
Out-of-Town Companies.				
Bay State	50,000,000	50	⅜	½
" Income Bonds	2,000,000	1,000	—	75
Binghampton Gas Works	450,000	100	—	—
" 1st Mtg. 5's	500,000	1,000	95	100
Boston United Gas Co.—				
1st Series S. F. Trust	7,000,000	1,000	82	85
2d " " "	3,000,000	1,000	47½	50
Buffalo City Gas Co.	5,500,000	100	5	8
Bonds, 5's	5,250,000	1,000	59	60
Capital, Sacramento	500,000	50	—	35
Bonds (6's)	150,000	1,000	—	—
Chicago Gas Co. Guaranteed				
Gold Bonds	7,660,000	1,000	104	106¼
Cincinnati Gas and Electric				
Co.	29,500,000	100	92	93
Columbus (O.) Gas Co., 1st				
Mortgage Bonds	1,500,000	1,000	96	98
Columbus (O.) Gas Lt. &				
Heating Co.	1,682,750	100	90¼	91
Preferred	3,026,500	100	75¼	80
Consumers, Toronto	2,000,000	50	200	204
Consolidated, Baltimore	13,460,084	100	106½	—
Mortgages, 5's	3,400,000	—	89	100
Chesapeake, 1st 6's	1,000,000	—	—	—
Equitable, 1st 6's	910,000	—	—	—
Consolidated, 1st 5's	1,490,000	—	—	112
Consolidated Gas Co. of N. J.	1,000,000	100	15	—
Con. Mtg. 5's	976,000	1,000	92	95
Bonds	75,000	—	—	100
Denver Gas and Electric	3,500,000	—	102	105
Detroit City Gas Co.	6,580,000	—	—	50
" Prior Lien 5's	5,619,000	1,000	97	100½
Detroit Gas Co., 5's	381,000	1,000	75	80
Equitable Gas & Fuel Co.,				
Chicago, Bonds	2,000,000	1,000	—	101
Essex and Hudson Gas Co.	6,500,000	—	39	40
Fort Wayne	2,000,000	—	—	—
" Bonds	2,000,000	—	55	—
Grand Rapids Gas Light Co.,				
1st Mtg. 5's	1,350,000	1,000	100	101
Hartford	750,000	25	190	200
Hudson County Gas Co., of				
New Jersey	10,500,000	—	112	113½
" Bonds, 5's	10,500,000	—	103	103½
Indianapolis	2,000,000	—	78	83
" Bonds, 5's	2,650,000	—	104½	105
Jackson Gas Co.	250,000	50	82	—
" 1st Mtg. 5's	290,000	1,000	97	100
Kansas City Gas Light Co.,				
of Missouri	5,000,000	100	—	86
Bonds, 1st 5's	3,822,000	1,000	102	104
Laclede Gas Co., St. Louis.	10,000,000	100	104½	104¾
Preferred	2,500,000	100	94¾	102
Bonds	10,000,000	1,000	102½	103
Lafayette Gas Co., Ind.	1,000,000	100	—	60
Bonds	1,000,000	1,000	60	65
Louisville	2,570,000	50	143	145
Madison Gas and Electric Co.				
" 1st Mtg. 6's	400,000	1,000	106	108¾
Massachusetts Gas Companies, of Boston	25,000,000	100	92	92¼
Preferred	25,000,000	100	97½	97¾
Montreal Gas Co., Canada	2,000,000	100	218	218¾
Nashville Gas Light Co.	1,000,000	100	110	—
Newark, N. J., Con. Gas Co.	6,000,000	—	56	58
Bonds, 6's	6,000,000	—	137	138
New Haven Gas Co.	2,000,000	25	200	—
Peoples Gas Lt. & Coke Co.,				
Chicago	25,000,000	100	103¼	103½
1st Mortgage	20,100,000	1,000	—	—
2d "	2,500,000	1,000	104	—
Rochester Gas & Electric Co.	2,150,000	50	88	—
Preferred	2,150,000	50	118	—
Consolidated 5's	2,000,000	—	104¾	105½
San Francisco Gas Co., Cal.	15,500,000	—	—	—
St. Joseph Gas Co.—				
1st Mtg. 5's	1,000,000	1,000	100	102

DIVIDEND NOTICE.

No. 222 S. THIRD ST., Philadelphia, Pa., Aug. 17, 1911.

The Board of Directors of The American Gas Company have declared a quarterly dividend of 1¾ per cent., or $1.75 per share, on the capital stock of the Company, payable Sept. 1, 1911, to stockholders of record on Aug. 21, 1911, at 3 P.M. Checks will be mailed.

1889-1 W. T. ROBINSON, Treasurer.

MEETING TIMES OF THE VARIOUS GAS ASSOCIATIONS.

American Gas Institute.—Annual meeting, October 18, 19, 20, 21, 1911. St. Louis, Mo. Officers: President, Donald McDonald, Louisville, Ky. Secretary, A. B. Beadle, 29 West 39th st., N. Y. City.

Canadian Gas Association.—Annual meeting, ———. Officers: President, Arthur Hewitt, Toronto, Ont.; Secretary and Treasurer, John Keillor, Hamilton, Ont.

Empire State Gas and Electric Association.—Annual meeting, Nov., 1911. New York City. Officers: President, M. J. Brayton, Utica, N. Y.; Secretary, C. H. B. Chapin, 29 W. 39th street. New York City.

Gulld of Gas Managers of New England.—Annual meeting, March, 1912. Young's Hotel, Boston; monthly meeting, second Saturday. Officers: President, Walter G. Africa, Manchester, N. H.; Secretary, H. K. Morrison, Brockton, Mass.

Illinois Gas Association.—Annual meeting, time, March, 1912, Chicago, Ills. Officers: President, C. B. Strohn, Elgin, Ills.; Secretary-Treasurer, F. E. Newberry, Dixon, Ills.

Illuminating Engineering Society.—Annual meeting, Sept. 25, 26, 27, 1911, Chicago, Ills. Meetings of Sections, monthly. Pres't, A. E. Kennelly, Boston, Mass.; Secretary, Preston S Millar, 29 W. 39th street, N. Y. City. Sections: New York, Secretary, Albert J. Marshall, 36 West 39th street. New England, Secretary, W. S. Farrow, 1290 Massachusetts avenue, Cambridge, Mass. Philadelphia, Secretary, S. B. Eichengreen, Broad and Arch streets. Chicago, Secretary, F. H. Bernhard, Marquette Building.

ndiana Gas Association.—Annual meeting, Jan. 17 and 18, 1912, Indianapolis. Officers: President, S. E. Mulholland, Fort Wayne; Vice-President, Howard L. Olds, Indianapolis; Secretary-Treasurer, Philmer Eves, Indianapolis.

Iowa District Gas Association.—Annual meeting, time, May, ——, 1912; Clinton, Ia. Officers: President, G. W. Clabaugh, Omaha, Neb.; Secretary and Treasurer, G. I. Vincent, Des Moines, Ia.

Kansas Gas, Water and Electric Light Association.—Annual meeting, time, ——— Wichita, Kas. Officers: President, W. A. Scothorn, Hutchinson, Kas.; Secretary and Treasurer, J. D. Nicholson, Newton, Kas.

Michigan Gas Association—Annual meeting, time, Sept. 20, 21, 22, 1911; Detroit, Mich. Officers: President, A. P. Ewing, Detroit, Mich.; Secretary-Treasurer, Glenn R. Chamberlain, Grand Rapids, Mich.

Missouri Electric Light, Gas, Water Works and Street Railway Association.—Annual meeting, April, 1912; St. Louis, Mo. Officers: President, F. E. Murray, Louisiana, Mo.; Secretary and Treasurer, N. J. Cunningham, Springfield, Mo.

National Commercial Gas Association.—Annual meeting, October 23-28, 1911. Denver, Officers: President, C. N. Stannard, Denver; Secretary, Louis Stotz, 29 West 39th street, New York City.

Natural Gas Association.—Annual meeting, May, 1912, Kansas City, Mo.; Officers: President, A. B. Macbeth, Independence, Kas. Secretary, T. C. Jones, Delaware, O.

New England Gas Association.—Annual meeting, third Wednesday in February, 1912, Boston. Officers: President, J. A. Coffin, Gloucester, Mass.; Secretary-Treasurer, N. W. Gifford, East Boston, Mass.

New Jersey State Gas Association.—President, William H. Pettes, Newark, N. J.; Secretary-Treasurer, Arthur H. Osborn, Belmar, N. J.

Ohio Gas Association.—Annual meeting, February 6 and 7, 1912, Columbus, O.; President, John M. Garard, Columbus, O.; Secretary-Treasurer, T. C. Jones, Delaware, O.

Pacific Coast Gas Association.—Annual meeting, Sept. 19, 20, 21 and 22, 1911, Oakland, Cal. Officers: President, F. A. Leach, Jr., Oakland, Cal.; Vice President, W. Baurhyte, Los Angeles, Cal.; Secretary-Treasurer, John A. Britton, 445 Sutter street, San Francisco, Cal.

Pennsylvania Gas Association.—Annual meeting, April, 1912, Williamsport, Pa. Officers President, C. W. Butterworth, Millon, Pa; Secretary-Treasurer, William H. Merritt, Lebanon, Pa.

Society of Gas Lighting.—Annual meeting, December, 1911; monthly meeting, second Thursday. Place, New York City. Officers: President, Fred. S. Benson; Secretary, George G. Ramsdell, 254 West 39th street, New York city.

Southern Gas Association.—Annual meeting, April, 1912, Jacksonville, Fla. Officers: President, H. B. Hoyt, Jacksonville, Fla.; Secretary-Treasurer, E. D. Brewer, Atlanta, Ga.

Southwestern Electrical and Gas Association.—Annual meeting. April 27, 28, 29, 1912; Houston, Tex. Officers: President, J. E. Carroll, Beaumont, Tex.; Secretary, D. G. Fisher, Dallas, Tex.

Wisconsin Gas Association.—Annual meeting, May 15 and 16, 1912, Milwaukee, Wis Officers: President, H. M. Buck, Waukesha, Wis.; Secretary-Treasurer, Henry Harmon. Milwaukee, Wis.